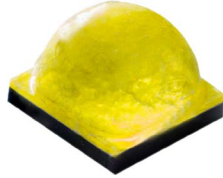




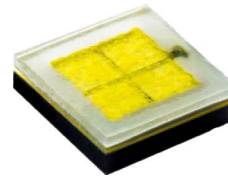
**THE DATASHEET OF
XHP35B-H0-0000-0D0BD20E1**



XLamp® XHP35.2 LEDs



XHP35.2 High-Density LED



XHP35.2 High-Intensity LED

PRODUCT DESCRIPTION

The XLamp® XHP35.2 LED is the next generation of Extreme High Power LEDs available in the XP footprint. Built on Cree LED's latest high-power LED array technology, the XHP35.2 LED improves the voltage characteristics, efficacy and reliability of the XHP35 LED in the same 3.45 mm x 3.45 mm footprint. The new XHP35.2 LED provides an easy drop-in upgrade so that lighting manufacturers can achieve higher system LPW on existing XHP35 designs with minimal system redesign cost.

The XHP35.2 LED offers a high-intensity option. In this document, the term XHP35.2 denotes the XHP35.2 LED without regard to high density or high intensity. The terms High Density and High Intensity are used when necessary to differentiate the performance of the two options.

FEATURES

- Available in white, and in 12-V version or 3-V & 6-V version (3-V/6-V is configurable by PCB layout)
- Available in 5-step EasyWhite® bins at 2700 K–5700 K CCT and 3-step & 2-step EasyWhite bins at 2700 K–4000 K CCT
- Available in ANSI white bins at 2700 K to 7000 K CCT
- Available in standard, 70, 80, 90, and 95 CRI minimum options
- Binned at 85 °C
- Maximum drive current: 6000 mA (3 V), 3000 mA (6 V), 1500 mA (12 V)
- Low thermal resistance: 0.7 °C/W
- Wide viewing angle - High Density: 135°, High Intensity: 120°
- Unlimited floor life at ≤ 30 °C/85% RH
- Reflow solderable - JEDEC J-STD-020C
- RoHS and REACH compliant
- UL® recognized component (E349212)



Cree LED / 4001 E. Hwy. 54, Suite 2000 / Durham, NC 27709 USA / +1.919.313.5330 / www.cree-led.com

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CHARACTERISTICS

XLamp XHP35.2 LEDs are tested and binned in production in the 3-V and 12-V configurations. See the Mechanical Dimensions section on page 40 for pad layout options.

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|----------|---------|
| Thermal resistance, junction to solder point | °C/W | | 0.7 | |
| Viewing angle (FWHM) - High Density | degrees | | 135 | |
| Viewing angle (FWHM) - High Intensity | degrees | | 120 | |
| Temperature coefficient of voltage (3 V) | mV/°C | | -1.25 | |
| Temperature coefficient of voltage (6 V)* | mV/°C | | -2.5 | |
| Temperature coefficient of voltage (12 V) | mV/°C | | -5 | |
| ESD withstand voltage (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current (3 V) | mA | | | 6000 |
| DC forward current (6 V)* | mA | | | 3000 |
| DC forward current (12 V) | mA | | | 1500 |
| Reverse voltage | V | | | 1 |
| Forward voltage (3 V, @ 1400 mA, 85 °C) | V | | 2.75 | 3.05 |
| Forward voltage (6 V, @ 700 mA, 85 °C)* | V | | 5.5 | 6.1 |
| Forward voltage (12 V, @ 350 mA, 85 °C) | V | | 11 | 12.2 |
| LED junction temperature | °C | | | 150 |

Note

- Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.
- * Data for the 6-V configuration are calculated and for reference only.

HIGH DENSITY EASYWHITE® ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V)

The following table provides order codes for XLamp XHP35.2 High Density LEDs. For a complete description of how the flux and chromaticity groups are reflected in the bin code and order code nomenclature, please see the Bin and Order Code Formats section (page 35).

Binning condition: $T_j = 85\text{ }^\circ\text{C}$; 12 V, $I_f = 350\text{ mA}$

| Nominal CCT | CRI | | Minimum Luminous Flux @350 mA | | 2-Step | | 3-Step | | 5-Step | |
|-------------|-----|-----|-------------------------------|-------------------|--------|------------|--------------------------|--------------------------|--------|--------------------------|
| | Min | Typ | Group | Flux (lm) @ 85 °C | Group | Order Code | Group | Order Code | Group | Order Code |
| 5700 K | 70 | | E4 | 635 | | | | | 57E | XHP35B-00-0000-0D0BE457E |
| | | | E2 | 590 | | | | XHP35B-00-0000-0D0BE257E | | |
| | 80 | | E2 | 590 | | | | | 57E | XHP35B-00-0000-0D0HE257E |
| | | | D4 | 550 | | | | XHP35B-00-0000-0D0HD457E | | |
| | 90 | | D2 | 510 | | | | | 57E | XHP35B-00-0000-0D0UD257E |
| | | | C4 | 475 | | | | XHP35B-00-0000-0D0UC457E | | |
| C2 | | | 440 | | | | XHP35B-00-0000-0D0UC257E | | | |
| 5000 K | 70 | | E4 | 635 | | | | | 50E | XHP35B-00-0000-0D0BE450E |
| | | | E2 | 590 | | | | XHP35B-00-0000-0D0BE250E | | |
| | 80 | | E2 | 590 | | | | | 50E | XHP35B-00-0000-0D0HE250E |
| | | | D4 | 550 | | | | XHP35B-00-0000-0D0HD450E | | |
| | 90 | | D2 | 510 | | | | | 50E | XHP35B-00-0000-0D0UD250E |
| | | | C4 | 475 | | | | XHP35B-00-0000-0D0UC450E | | |
| C2 | | | 440 | | | | XHP35B-00-0000-0D0UC250E | | | |

Notes:

- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and ± 2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH DENSITY EASYWHITE® ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V) - CONTINUED

| Nominal CCT | CRI | | Minimum Luminous Flux @350 mA | | 2-Step | | 3-Step | | 5-Step | |
|-------------|-----|-----|-------------------------------|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------|--------------------------|
| | Min | Typ | Group | Flux (lm) @ 85 °C | Group | Order Code | Group | Order Code | Group | Order Code |
| 4500 K | 70 | | E4 | 635 | | | | | 45E | XHP35B-00-0000-0D0BE445E |
| | | | E2 | 590 | | | | | | XHP35B-00-0000-0D0BE245E |
| | 80 | | E2 | 590 | | | | | 45E | XHP35B-00-0000-0D0HE245E |
| | | | D4 | 550 | | | | | | XHP35B-00-0000-0D0HD445E |
| | 90 | | D2 | 510 | | | | | 45E | XHP35B-00-0000-0D0UD245E |
| | | | C4 | 475 | | | | | | XHP35B-00-0000-0D0UC445E |
| | | C2 | 440 | | | | | XHP35B-00-0000-0D0UC245E | | |
| 4000 K | 70 | | E4 | 635 | | | | | 40E | XHP35B-00-0000-0D0BE440E |
| | | | E2 | 590 | | | | | | XHP35B-00-0000-0D0BE240E |
| | 80 | | E2 | 590 | | | 40G | XHP35B-00-0000-0D0HE240G | 40E | XHP35B-00-0000-0D0HE240E |
| | | | D4 | 550 | | | | XHP35B-00-0000-0D0HD440G | | XHP35B-00-0000-0D0HD440E |
| | 90 | | C4 | 475 | | | | XHP35B-00-0000-0D0UC440H | 40E | XHP35B-00-0000-0D0UC440E |
| | | | C2 | 440 | 40H | XHP35B-00-0000-0D0UC240H | 40G | XHP35B-00-0000-0D0UC240G | | XHP35B-00-0000-0D0UC240E |
| | | B4 | 410 | | XHP35B-00-0000-0D0UB440H | | XHP35B-00-0000-0D0UB440G | XHP35B-00-0000-0D0UB440E | | |
| 3500 K | 70 | | E2 | 590 | | | | | 35E | XHP35B-00-0000-0D0BE235E |
| | | | D4 | 550 | | | | | | XHP35B-00-0000-0D0BD435E |
| | 80 | | D4 | 550 | | | 35G | XHP35B-00-0000-0D0HD435G | 35E | XHP35B-00-0000-0D0HD435E |
| | | | D2 | 510 | | | | XHP35B-00-0000-0D0HD235G | | XHP35B-00-0000-0D0HD235E |
| | 90 | | C4 | 475 | | | | XHP35B-00-0000-0D0UC435H | 35E | XHP35B-00-0000-0D0UC435E |
| | | | C2 | 440 | 35H | XHP35B-00-0000-0D0UC235H | 35G | XHP35B-00-0000-0D0UC235G | | XHP35B-00-0000-0D0UC235E |
| | | B4 | 410 | | XHP35B-00-0000-0D0UB435H | | XHP35B-00-0000-0D0UB435G | XHP35B-00-0000-0D0UB435E | | |

Notes:

- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH DENSITY EASYWHITE® ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V) - CONTINUED

| Nominal CCT | CRI | | Minimum Luminous Flux @350 mA | | 2-Step | | 3-Step | | 5-Step | |
|-------------|--------|-----|-------------------------------|-------------------|--------|--------------------------|--------|--------------------------|--------|--------------------------|
| | Min | Typ | Group | Flux (lm) @ 85 °C | Group | Order Code | Group | Order Code | Group | Order Code |
| 3000 K | 70 | | E2 | 590 | | | | | 30E | XHP35B-00-0000-0D0BE230E |
| | | | D4 | 550 | | | | | | XHP35B-00-0000-0D0BD430E |
| | | | D2 | 510 | | | | | | XHP35B-00-0000-0D0BD230E |
| | 80 | | D4 | 550 | | | 30G | XHP35B-00-0000-0D0HD430G | 30E | XHP35B-00-0000-0D0HD430E |
| | | | D2 | 510 | | | | XHP35B-00-0000-0D0HD230G | | XHP35B-00-0000-0D0HD230E |
| | 90 | | C2 | 440 | 30H | XHP35B-00-0000-0D0UC230H | 30G | XHP35B-00-0000-0D0UC230G | 30E | XHP35B-00-0000-0D0UC230E |
| | | | B4 | 410 | | XHP35B-00-0000-0D0UB430H | | XHP35B-00-0000-0D0UB430G | | XHP35B-00-0000-0D0UB430E |
| | | | B2 | 380 | | XHP35B-00-0000-0D0UB230H | | XHP35B-00-0000-0D0UB230G | | XHP35B-00-0000-0D0UB230E |
| | 2700 K | 80 | | D2 | 510 | | 27G | XHP35B-00-0000-0D0HD227G | 27E | XHP35B-00-0000-0D0HD227E |
| | | | C4 | 475 | | XHP35B-00-0000-0D0HC427G | | XHP35B-00-0000-0D0HC427E | | |
| 90 | | | B4 | 410 | 27H | XHP35B-00-0000-0D0UB427H | 27G | XHP35B-00-0000-0D0UB427G | 27E | XHP35B-00-0000-0D0UB427E |
| | | | B2 | 380 | | XHP35B-00-0000-0D0UB227H | | XHP35B-00-0000-0D0UB227G | | XHP35B-00-0000-0D0UB227E |

Notes:

- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH DENSITY ANSI ORDER CODES SUGGESTED FOR NEW DESIGNS (3-V/6-V)

The following tables provide order codes for XLamp XHP35.2 High Density LEDs. For a complete description of how the flux and chromaticity groups are reflected in the bin code and order code nomenclature, please see the Bin and Order Code Formats section (page 38).

Binning condition: $T_j = 85\text{ °C}$; 3 V, $I_f = 1400\text{ mA}$

Reference condition: $T_j = 85\text{ °C}$; 6 V, $I_f = 700\text{ mA}$

3-V & 6-V XHP35.2 LEDs

| Nominal CCT | Chromaticity Regions | CRI | | Minimum Luminous Flux @ 350 mA | | Order Code |
|-------------|--|-----|-----|--------------------------------|-------------------|--------------------------|
| | | Min | Typ | Group | Flux (lm) @ 85 °C | |
| 7000 K | 0A, 0B, 0C, 0D, 0R, 0S, 0T, 0U, 1A, 1B, 1C, 1D, 1R, 1S, 1T, 1U | 0 | 68 | E4 | 635 | XHP35B-00-0000-0A00E40DT |
| | | | | E2 | 590 | XHP35B-00-0000-0A00E20DT |
| | | | | D4 | 550 | XHP35B-00-0000-0A00D40DT |
| 6500 K | 1A, 1B, 1C, 1D | 0 | 68 | E4 | 635 | XHP35B-00-0000-0A00E40E1 |
| | | | | E2 | 590 | XHP35B-00-0000-0A00E20E1 |
| | | | | D4 | 550 | XHP35B-00-0000-0A00D40E1 |
| 6200 K | 0A, 0B, 0C, 0D, 0R, 0S, 0T, 0U, 1A, 1B, 1C, 1D, 1R, 1S, 1T, 1U, 2A, 2B, 2C, 2D, 2R, 2S, 2T, 2U, 3A, 3B, 3R, 3S | 0 | 68 | E4 | 635 | XHP35B-00-0000-0A00E40S1 |
| | | | | E2 | 590 | XHP35B-00-0000-0A00E20S1 |
| | | | | D4 | 550 | XHP35B-00-0000-0A00D40S1 |
| 5700 K | 2A, 2B, 2C, 2D | 0 | 68 | E4 | 635 | XHP35B-00-0000-0A00E40E2 |
| | | | | E2 | 590 | XHP35B-00-0000-0A00E20E2 |
| | | | | D4 | 550 | XHP35B-00-0000-0A00D40E2 |
| 5000 K | 3A, 3B, 3C, 3D | 0 | 68 | E4 | 635 | XHP35B-00-0000-0A00E40E3 |
| | | | | E2 | 590 | XHP35B-00-0000-0A00E20E3 |
| | | | | D4 | 550 | XHP35B-00-0000-0A00D40E3 |

Notes:

- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and ± 2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH DENSITY ANSI ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V)

Binning condition: $T_j = 85\text{ }^\circ\text{C}$; 12 V, $I_f = 350\text{ mA}$

12-V XHP35.2 LEDs

| Nominal CCT | Chromaticity Regions | CRI | | Minimum Luminous Flux @ 350 mA | | Order Code | | |
|-------------|--|--------|----------------|--------------------------------|-------------------|--------------------------|--------------------------|--------------------------|
| | | Min | Typ | Group | Flux (lm) @ 85 °C | | | |
| 7000 K | 0A, 0B, 0C, 0D, 0R, 0S, 0T, 0U, 1A, 1B, 1C, 1D, 1R, 1S, 1T, 1U | 0 | 68 | E2 | 590 | XHP35B-00-0000-0D00E20DT | | |
| | | | | D4 | 550 | XHP35B-00-0000-0D00D40DT | | |
| | | 70 | | E2 | 590 | XHP35B-00-0000-0D0BE20DT | | |
| | | | | D4 | 550 | XHP35B-00-0000-0D0BD40DT | | |
| | | 80 | | D4 | 550 | XHP35B-00-0000-0D0HD40DT | | |
| | | | | D2 | 510 | XHP35B-00-0000-0D0HD20DT | | |
| | | 90 | | | D2 | 510 | XHP35B-00-0000-0D0UD20DT | |
| | | | | | C4 | 475 | XHP35B-00-0000-0D0UC40DT | |
| | | | | | C2 | 440 | XHP35B-00-0000-0D0UC20DT | |
| | | 6500 K | 1A, 1B, 1C, 1D | 0 | 68 | E2 | 590 | XHP35B-00-0000-0D00E20E1 |
| | | | | | | D4 | 550 | XHP35B-00-0000-0D00D40E1 |
| | | | | 70 | | E2 | 590 | XHP35B-00-0000-0D0BE20E1 |
| D4 | 550 | | | | | XHP35B-00-0000-0D0BD40E1 | | |
| 80 | | | | D4 | 550 | XHP35B-00-0000-0D0HD40E1 | | |
| | | | | D2 | 510 | XHP35B-00-0000-0D0HD20E1 | | |
| 90 | | | | | D2 | 510 | XHP35B-00-0000-0D0UD20E1 | |
| | | | | | C4 | 475 | XHP35B-00-0000-0D0UC40E1 | |
| | | | | | C2 | 440 | XHP35B-00-0000-0D0UC20E1 | |
| 6000 K | 1A, 1B, 1C, 1D, 1R, 1S, 1T, 1U, 2A, 2B, 2C, 2D, 2R, 2S, 2T, 2U | | | 0 | 68 | E2 | 590 | XHP35B-00-0000-0D00E20DV |
| | | | | | | D4 | 550 | XHP35B-00-0000-0D00D40DV |
| | | | | 70 | | E2 | 590 | XHP35B-00-0000-0D0BE20DV |
| | | D4 | 550 | | | XHP35B-00-0000-0D0BD40DV | | |
| | | 80 | | D4 | 550 | XHP35B-00-0000-0D0HD40DV | | |
| | | | | D2 | 510 | XHP35B-00-0000-0D0HD20DV | | |
| | | 90 | | | D2 | 510 | XHP35B-00-0000-0D0UD20DV | |
| | | | | | C4 | 475 | XHP35B-00-0000-0D0UC40DV | |
| | | | | | C2 | 440 | XHP35B-00-0000-0D0UC20DV | |

Notes:

- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and ± 2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH DENSITY ANSI ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V)- CONTINUED

| Nominal CCT | Chromaticity Regions | CRI | | Minimum Luminous Flux @ 350 mA | | Order Code | | |
|-------------|----------------------|--------|----------------|--------------------------------|-------------------|--------------------------|-----|--------------------------|
| | | Min | Typ | Group | Flux (lm) @ 85 °C | | | |
| 5700 K | 2A, 2B, 2C, 2D | 0 | 68 | E4 | 635 | XHP35B-00-0000-0D00E40E2 | | |
| | | | | E2 | 590 | XHP35B-00-0000-0D00E20E2 | | |
| | | 70 | | E4 | 635 | XHP35B-00-0000-0D0BE40E2 | | |
| | | | | E2 | 590 | XHP35B-00-0000-0D0BE20E2 | | |
| | | 80 | | E2 | 590 | XHP35B-00-0000-0D0HE20E2 | | |
| | | | | D4 | 550 | XHP35B-00-0000-0D0HD40E2 | | |
| | | 90 | | D2 | 510 | XHP35B-00-0000-0D0UD20E2 | | |
| | | | | C4 | 475 | XHP35B-00-0000-0D0UC40E2 | | |
| | | | | C2 | 440 | XHP35B-00-0000-0D0UC20E2 | | |
| | | 5000 K | 3A, 3B, 3C, 3D | 0 | 68 | E4 | 635 | XHP35B-00-0000-0D00E40E3 |
| | | | | | | E2 | 590 | XHP35B-00-0000-0D00E20E3 |
| | | | | 70 | | E4 | 635 | XHP35B-00-0000-0D0BE40E3 |
| E2 | 590 | | | | | XHP35B-00-0000-0D0BE20E3 | | |
| 80 | | | | E2 | 590 | XHP35B-00-0000-0D0HE20E3 | | |
| | | | | D4 | 550 | XHP35B-00-0000-0D0HD40E3 | | |
| 90 | | | | D2 | 510 | XHP35B-00-0000-0D0UD20E3 | | |
| | | | | C4 | 475 | XHP35B-00-0000-0D0UC40E3 | | |
| | | | | C2 | 440 | XHP35B-00-0000-0D0UC20E3 | | |
| 4500 K | 4A, 4B, 4C, 4D | | | 0 | 68 | E4 | 635 | XHP35B-00-0000-0D00E40E4 |
| | | | | | | E2 | 590 | XHP35B-00-0000-0D00E20E4 |
| | | | | 70 | | E4 | 635 | XHP35B-00-0000-0D0BE40E4 |
| | | E2 | 590 | | | XHP35B-00-0000-0D0BE20E4 | | |
| | | 80 | | E2 | 590 | XHP35B-00-0000-0D0HE20E4 | | |
| | | | | D4 | 550 | XHP35B-00-0000-0D0HD40E4 | | |
| | | 90 | | D2 | 510 | XHP35B-00-0000-0D0UD20E4 | | |
| | | | | C4 | 475 | XHP35B-00-0000-0D0UC40E4 | | |
| | | | | C2 | 440 | XHP35B-00-0000-0D0UC20E4 | | |

Notes:

- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH DENSITY ANSI ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V)- CONTINUED

| Nominal CCT | Chromaticity Regions | CRI | | Minimum Luminous Flux @ 350 mA | | Order Code | | |
|-------------|----------------------|--------|----------------|--------------------------------|-------------------|---------------------------|-----|---------------------------|
| | | Min | Typ | Group | Flux (lm) @ 85 °C | | | |
| 4000 K | 5A, 5B, 5C, 5D | 0 | 68 | E4 | 635 | XHP35B-00-0000-0D00E40E5 | | |
| | | | | E2 | 590 | XHP35B-00-0000-0D00E20E5 | | |
| | | 70 | | E4 | 635 | XHP35B-00-0000-0D00BE40E5 | | |
| | | | | E2 | 590 | XHP35B-00-0000-0D00BE20E5 | | |
| | | 80 | | E2 | 590 | XHP35B-00-0000-0D00HE20E5 | | |
| | | | | D4 | 550 | XHP35B-00-0000-0D00HD40E5 | | |
| | | 90 | | C4 | 475 | XHP35B-00-0000-0D00UC40E5 | | |
| | | | | C2 | 440 | XHP35B-00-0000-0D00UC20E5 | | |
| | | | | B4 | 410 | XHP35B-00-0000-0D00UB40E5 | | |
| | | 3500 K | 6A, 6B, 6C, 6D | 70 | | E2 | 590 | XHP35B-00-0000-0D00BE20E6 |
| | | | | | | D4 | 550 | XHP35B-00-0000-0D00BD40E6 |
| | | | | 80 | | D4 | 550 | XHP35B-00-0000-0D00HD40E6 |
| D2 | 510 | | | | | XHP35B-00-0000-0D00HD20E6 | | |
| 90 | | | | C4 | 475 | XHP35B-00-0000-0D00UC40E6 | | |
| | | | | C2 | 440 | XHP35B-00-0000-0D00UC20E6 | | |
| 3000 K | 7A, 7B, 7C, 7D | 70 | | E2 | 590 | XHP35B-00-0000-0D00BE20E7 | | |
| | | | | D4 | 550 | XHP35B-00-0000-0D00BD40E7 | | |
| | | | | D2 | 510 | XHP35B-00-0000-0D00BD20E7 | | |
| | | 80 | | D4 | 550 | XHP35B-00-0000-0D00HD40E7 | | |
| | | | | D2 | 510 | XHP35B-00-0000-0D00HD20E7 | | |
| | | 90 | | C2 | 440 | XHP35B-00-0000-0D00UC20E7 | | |
| B4 | 410 | | | XHP35B-00-0000-0D00UB40E7 | | | | |
| 2700 K | 8A, 8B, 8C, 8D | 80 | | D2 | 510 | XHP35B-00-0000-0D00HD20E8 | | |
| | | | | C4 | 475 | XHP35B-00-0000-0D00HC40E8 | | |
| | | 90 | | B4 | 410 | XHP35B-00-0000-0D00UB40E8 | | |
| | | | | B2 | 380 | XHP35B-00-0000-0D00UB20E8 | | |

Notes:

- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH INTENSITY EASYWHITE® ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V)

The following table provides order codes for XLamp XHP35.2 High Intensity LEDs. For a complete description of how the flux and chromaticity groups are reflected in the bin code and order code nomenclature, please see the Bin and Order Code Formats section (page 35).

Binning condition: $T_j = 85\text{ }^\circ\text{C}$; 12 V, $I_f = 350\text{ mA}$

| Nominal CCT | CRI | | Minimum Luminous Flux @350 mA | | 2-Step | | 3-Step | | 5-Step | |
|-------------|-----|-----|-------------------------------|-------------------|--------|------------|--------|--------------------------|--------|--------------------------|
| | Min | Typ | Group | Flux (lm) @ 85 °C | Group | Order Code | Group | Order Code | Group | Order Code |
| 5700 K | 70 | | D4 | 550 | | | | | 57E | XHP35B-H0-0000-0D0BD457E |
| | | | D2 | 510 | | | | XHP35B-H0-0000-0D0BD257E | | |
| | | | C4 | 475 | | | | XHP35B-H0-0000-0D0BC457E | | |
| | 80 | | D2 | 510 | | | | | 57E | XHP35B-H0-0000-0D0HD257E |
| | | | C4 | 475 | | | | XHP35B-H0-0000-0D0HC457E | | |
| | | | C2 | 440 | | | | XHP35B-H0-0000-0D0HC257E | | |
| | 90 | | C4 | 475 | | | | | 57E | XHP35B-H0-0000-0D0UC457E |
| | | | C2 | 440 | | | | XHP35B-H0-0000-0D0UC257E | | |
| | | | B4 | 410 | | | | XHP35B-H0-0000-0D0UB457E | | |

Notes:

- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and ± 2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH INTENSITY EASYWHITE® ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V) - CONTINUED

| Nominal CCT | CRI | | Minimum Luminous Flux @350 mA | | 2-Step | | 3-Step | | 5-Step | |
|-------------|-----|-----|-------------------------------|-------------------|--------|--------------------------|--------------------------|--------------------------|--------|--------------------------|
| | Min | Typ | Group | Flux (lm) @ 85 °C | Group | Order Code | Group | Order Code | Group | Order Code |
| 5000 K | 70 | | D4 | 550 | | | | | 50E | XHP35B-H0-0000-0D0BD450E |
| | | | D2 | 510 | | | | | | XHP35B-H0-0000-0D0BD250E |
| | | | C4 | 475 | | | | | | XHP35B-H0-0000-0D0BC450E |
| | 80 | | D2 | 510 | | | 50G | XHP35B-H0-0000-0D0HD250G | 50E | XHP35B-H0-0000-0D0HD250E |
| | | | C4 | 475 | | | XHP35B-H0-0000-0D0HC450G | XHP35B-H0-0000-0D0HC450E | | |
| | | | C2 | 440 | | | XHP35B-H0-0000-0D0HC250G | XHP35B-H0-0000-0D0HC250E | | |
| | 90 | | C2 | 440 | 50H | XHP35B-H0-0000-0D0UC250H | 50G | XHP35B-H0-0000-0D0UC250G | 50E | XHP35B-H0-0000-0D0UC250E |
| | | | B4 | 410 | | XHP35B-H0-0000-0D0UB450H | | XHP35B-H0-0000-0D0UB450G | | XHP35B-H0-0000-0D0UB450E |
| | | | B2 | 380 | | XHP35B-H0-0000-0D0UB250H | | XHP35B-H0-0000-0D0UB250G | | XHP35B-H0-0000-0D0UB250E |
| 4500 K | 70 | | D4 | 550 | | | | | 45E | XHP35B-H0-0000-0D0BD445E |
| | | | D2 | 510 | | | | | | XHP35B-H0-0000-0D0BD245E |
| | | | C4 | 475 | | | | | | XHP35B-H0-0000-0D0BC445E |
| | 80 | | D2 | 510 | | | 45G | XHP35B-H0-0000-0D0HD245G | 45E | XHP35B-H0-0000-0D0HD245E |
| | | | C4 | 475 | | | XHP35B-H0-0000-0D0HC445G | XHP35B-H0-0000-0D0HC445E | | |
| | | | C2 | 440 | | | XHP35B-H0-0000-0D0HC245G | XHP35B-H0-0000-0D0HC245E | | |
| | 90 | | C2 | 440 | 45H | XHP35B-H0-0000-0D0UC245H | 45G | XHP35B-H0-0000-0D0UC245G | 45E | XHP35B-H0-0000-0D0UC245E |
| | | | B4 | 410 | | XHP35B-H0-0000-0D0UB445H | | XHP35B-H0-0000-0D0UB445G | | XHP35B-H0-0000-0D0UB445E |
| | | | B2 | 380 | | XHP35B-H0-0000-0D0UB245H | | XHP35B-H0-0000-0D0HB245G | | XHP35B-H0-0000-0D0UB245E |

Notes:

- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH INTENSITY EASYWHITE® ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V) - CONTINUED

| Nominal CCT | CRI | | Minimum Luminous Flux @350 mA | | 2-Step | | 3-Step | | 5-Step | |
|-------------|-----|-----|-------------------------------|-------------------|--------|--------------------------|--------|--------------------------|--------|--------------------------|
| | Min | Typ | Group | Flux (lm) @ 85 °C | Group | Order Code | Group | Order Code | Group | Order Code |
| 4000 K | 70 | | D4 | 550 | | | | | 40E | XHP35B-H0-0000-0D0BD440E |
| | | | D2 | 510 | | | | XHP35B-H0-0000-0D0BD240E | | |
| | | | C4 | 475 | | | | XHP35B-H0-0000-0D0BC440E | | |
| | | | C2 | 440 | | | | XHP35B-H0-0000-0D0BC240E | | |
| | 80 | | D2 | 510 | | | 40G | XHP35B-H0-0000-0D0HD240G | 40E | XHP35B-H0-0000-0D0HD240E |
| | | | C4 | 475 | | | | XHP35B-H0-0000-0D0HC440G | | XHP35B-H0-0000-0D0HC440E |
| | | | C2 | 440 | | | | XHP35B-H0-0000-0D0HC240G | | XHP35B-H0-0000-0D0HC240E |
| | 90 | | B4 | 410 | 40H | XHP35B-H0-0000-0D0UB440H | 40G | XHP35B-H0-0000-0D0UB440G | 40E | XHP35B-H0-0000-0D0UB440E |
| | | | B2 | 380 | | XHP35B-H0-0000-0D0UB240H | | XHP35B-H0-0000-0D0UB240G | | XHP35B-H0-0000-0D0UB240E |
| | | | A4 | 355 | | XHP35B-H0-0000-0D0UA440H | | XHP35B-H0-0000-0D0UA440G | | XHP35B-H0-0000-0D0UA440E |
| | 95 | | B2 | 380 | 40H | XHP35B-H0-0000-0D0ZB240H | 40G | XHP35B-H0-0000-0D0ZB240G | | |
| | | | A4 | 355 | | XHP35B-H0-0000-0D0ZA440H | | XHP35B-H0-0000-0D0ZA440G | | |

Notes:

- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH INTENSITY EASYWHITE® ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V) - CONTINUED

| Nominal CCT | CRI | | Minimum Luminous Flux @350 mA | | 2-Step | | 3-Step | | 5-Step | |
|-------------|--------|-----|-------------------------------|-------------------|--------|--------------------------|--------------------------|--------------------------|--------|--------------------------|
| | Min | Typ | Group | Flux (lm) @ 85 °C | Group | Order Code | Group | Order Code | Group | Order Code |
| 3500 K | 70 | | D2 | 510 | | | | | 35E | XHP35B-H0-0000-0D0BD235E |
| | | | C4 | 475 | | | | | | XHP35B-H0-0000-0D0BC435E |
| | | | C2 | 440 | | | | | | XHP35B-H0-0000-0D0BC235E |
| | 80 | | C4 | 475 | | | 35G | XHP35B-H0-0000-0D0HC435G | 35E | XHP35B-H0-0000-0D0HC435E |
| | | | C2 | 440 | | | | XHP35B-H0-0000-0D0HC235E | | |
| | | | B4 | 410 | | | | XHP35B-H0-0000-0D0HB435E | | |
| | 90 | | B4 | 410 | 35H | XHP35B-H0-0000-0D0UB435H | 35G | XHP35B-H0-0000-0D0UB435G | 35E | XHP35B-H0-0000-0D0UB435E |
| | | | B2 | 380 | | XHP35B-H0-0000-0D0UB235H | | XHP35B-H0-0000-0D0UB235G | | XHP35B-H0-0000-0D0UB235E |
| | | | A4 | 355 | | XHP35B-H0-0000-0D0UA435H | | XHP35B-H0-0000-0D0UA435G | | XHP35B-H0-0000-0D0UA435E |
| | 95 | | A4 | 355 | 35H | XHP35B-H0-0000-0D0ZA435H | 35G | XHP35B-H0-0000-0D0ZA435G | | |
| | | | A2 | 330 | | XHP35B-H0-0000-0D0ZA235H | | XHP35B-H0-0000-0D0ZA235G | | |
| | 3000 K | 70 | | D2 | 510 | | | | | 30E |
| C4 | | | | 475 | | | XHP35B-H0-0000-0D0BC430E | | | |
| C2 | | | | 440 | | | XHP35B-H0-0000-0D0BC230E | | | |
| 80 | | | C4 | 475 | | | 30G | XHP35B-H0-0000-0D0HC430G | 30E | XHP35B-H0-0000-0D0HC430E |
| | | | C2 | 440 | | | | XHP35B-H0-0000-0D0HC230E | | |
| | | | B4 | 410 | | | | XHP35B-H0-0000-0D0HB430E | | |
| 90 | | | B4 | 410 | 30H | XHP35B-H0-0000-0D0UB430H | 30G | XHP35B-H0-0000-0D0UB430G | 30E | XHP35B-H0-0000-0D0UB430E |
| | | | B2 | 380 | | XHP35B-H0-0000-0D0UB230H | | XHP35B-H0-0000-0D0UB230G | | XHP35B-H0-0000-0D0UB230E |
| | | | A4 | 355 | | XHP35B-H0-0000-0D0UA430H | | XHP35B-H0-0000-0D0UA430G | | XHP35B-H0-0000-0D0UA430E |
| 95 | | | A4 | 355 | 30H | XHP35B-H0-0000-0D0ZA430H | 30G | XHP35B-H0-0000-0D0ZA430G | | |
| | | | A2 | 330 | | XHP35B-H0-0000-0D0ZA230H | | XHP35B-H0-0000-0D0ZA230G | | |

Notes:

- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH INTENSITY EASYWHITE® ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V) - CONTINUED

| Nominal CCT | CRI | | Minimum Luminous Flux @350 mA | | 2-Step | | 3-Step | | 5-Step | |
|-------------|-----|-----|-------------------------------|-------------------|--------|--------------------------|--------|--------------------------|--------|--------------------------|
| | Min | Typ | Group | Flux (lm) @ 85 °C | Group | Order Code | Group | Order Code | Group | Order Code |
| 2700 K | 80 | | C2 | 440 | | | 27G | XHP35B-H0-0000-0D0HC227G | 27E | XHP35B-H0-0000-0D0HC227E |
| | | | B4 | 410 | | | | XHP35B-H0-0000-0D0HB427G | | XHP35B-H0-0000-0D0HB427E |
| | | | B2 | 380 | | | | XHP35B-H0-0000-0D0HB227G | | XHP35B-H0-0000-0D0HB227E |
| | 90 | | B2 | 380 | 27H | XHP35B-H0-0000-0D0UB227H | 27G | XHP35B-H0-0000-0D0UB227G | 27E | XHP35B-H0-0000-0D0UB227E |
| | | | A4 | 355 | | XHP35B-H0-0000-0D0UA427H | | XHP35B-H0-0000-0D0UA427G | | XHP35B-H0-0000-0D0UA427E |
| | | | A2 | 330 | | XHP35B-H0-0000-0D0UA227H | | XHP35B-H0-0000-0D0UA227G | | XHP35B-H0-0000-0D0UA227E |
| | 95 | | A2 | 330 | 27H | XHP35B-H0-0000-0D0ZA227H | 27G | XHP35B-H0-0000-0D0ZA227G | | |

Notes:

- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH INTENSITY ANSI ORDER CODES SUGGESTED FOR NEW DESIGNS (3-V/6-V)

The following tables provide order codes for XLamp XHP35.2 High Intensity LEDs. For a complete description of how the flux and chromaticity groups are reflected in the bin code and order code nomenclature, please see the Bin and Order Code Formats section (page 38).

Binning condition: $T_j = 85\text{ °C}$; 3 V, $I_f = 1400\text{ mA}$

Reference condition: $T_j = 85\text{ °C}$; 6 V, $I_f = 700\text{ mA}$

3-V & 6-V XHP35.2 LEDs

| Nominal CCT | Chromaticity Regions | CRI | | Minimum Luminous Flux @ 350 mA | | Order Code |
|-------------|--|-----|-----|--------------------------------|-------------------|--------------------------|
| | | Min | Typ | Group | Flux (lm) @ 85 °C | |
| 7000 K | 0A, 0B, 0C, 0D, 0R, 0S, 0T, 0U, 1A, 1B, 1C, 1D, 1R, 1S, 1T, 1U | 0 | 68 | D4 | 550 | XHP35B-H0-0000-0A00D40DT |
| | | | | D2 | 510 | XHP35B-H0-0000-0A00D20DT |
| 6500 K | 1A, 1B, 1C, 1D | 0 | 68 | D4 | 550 | XHP35B-H0-0000-0A00D40E1 |
| | | | | D2 | 510 | XHP35B-H0-0000-0A00D20E1 |
| 6200 K | 0A, 0B, 0C, 0D, 0R, 0S, 0T, 0U, 1A, 1B, 1C, 1D, 1R, 1S, 1T, 1U, 2A, 2B, 2C, 2D, 2R, 2S, 2T, 2U, 3A, 3B, 3R, 3S | 0 | 68 | D4 | 550 | XHP35B-H0-0000-0A00D4051 |
| | | | | D2 | 510 | XHP35B-H0-0000-0A00D2051 |
| 5700 K | 2A, 2B, 2C, 2D | 0 | 68 | D4 | 550 | XHP35B-H0-0000-0A00D40E2 |
| | | | | D2 | 510 | XHP35B-H0-0000-0A00D20E2 |
| 5000 K | 3A, 3B, 3C, 3D | 0 | 68 | D4 | 550 | XHP35B-H0-0000-0A00D40E3 |
| | | | | D2 | 510 | XHP35B-H0-0000-0A00D20E3 |

Notes:

- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and ± 2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH INTENSITY ANSI ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V)

Binning condition: $T_j = 85\text{ °C}$; 12 V, $I_f = 350\text{ mA}$

12-V XHP35.2 LEDs

| Nominal CCT | Chromaticity Regions | CRI | | Minimum Luminous Flux @ 350 mA | | Order Code |
|-------------|--|-----|-----|--------------------------------|-------------------|--------------------------|
| | | Min | Typ | Group | Flux (lm) @ 85 °C | |
| 7000- K | 0A, 0B, 0C, 0D, 0R, 0S, 0T, 0U, 1A, 1B, 1C, 1D, 1R, 1S, 1T, 1U | 80 | | D2 | 510 | XHP35B-H0-0000-0D0HD20DV |
| 6500 K | 1A, 1B, 1C, 1D | 70 | | D4 | 550 | XHP35B-H0-0000-0D0BD40E1 |
| | | | | D2 | 510 | XHP35B-H0-0000-0D0BD20E1 |
| | | | | C4 | 475 | XHP35B-H0-0000-0D0BC40E1 |
| | | 80 | | D2 | 510 | XHP35B-H0-0000-0D0HD20E1 |
| | | | | C4 | 475 | XHP35B-H0-0000-0D0HC40E1 |
| | | | | C2 | 440 | XHP35B-H0-0000-0D0HC20E1 |
| | | 90 | | C4 | 475 | XHP35B-H0-0000-0D0UC40E1 |
| | | | | C2 | 440 | XHP35B-H0-0000-0D0UC20E1 |
| | | | | B4 | 410 | XHP35B-H0-0000-0D0UB40E1 |
| 5700 K | 2A, 2B, 2C, 2D | 70 | | D4 | 550 | XHP35B-H0-0000-0D0BD40E2 |
| | | | | D2 | 510 | XHP35B-H0-0000-0D0BD20E2 |
| | | | | C4 | 475 | XHP35B-H0-0000-0D0BC40E2 |
| | | 80 | | D2 | 510 | XHP35B-H0-0000-0D0HD20E2 |
| | | | | C4 | 475 | XHP35B-H0-0000-0D0HC40E2 |
| | | | | C2 | 440 | XHP35B-H0-0000-0D0HC20E2 |
| | | 90 | | C4 | 475 | XHP35B-H0-0000-0D0UC40E2 |
| | | | | C2 | 440 | XHP35B-H0-0000-0D0UC20E2 |
| | | | | B4 | 410 | XHP35B-H0-0000-0D0UB40E2 |
| 5000 K | 3A, 3B, 3C, 3D | 70 | | D4 | 550 | XHP35B-H0-0000-0D0BD40E3 |
| | | | | D2 | 510 | XHP35B-H0-0000-0D0BD20E3 |
| | | | | C4 | 475 | XHP35B-H0-0000-0D0BC40E3 |
| | | 80 | | D2 | 510 | XHP35B-H0-0000-0D0HD20E3 |
| | | | | C4 | 475 | XHP35B-H0-0000-0D0HC40E3 |
| | | | | C2 | 440 | XHP35B-H0-0000-0D0HC20E3 |
| | | 90 | | C2 | 440 | XHP35B-H0-0000-0D0UC20E3 |
| | | | | B4 | 410 | XHP35B-H0-0000-0D0UB40E3 |
| | | | | B2 | 380 | XHP35B-H0-0000-0D0UB20E3 |

Notes:

- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and ± 2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

HIGH INTENSITY ANSI ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V) - CONTINUED

| Nominal CCT | Chromaticity Regions | CRI | | Minimum Luminous Flux @ 350 mA | | Order Code |
|-------------|----------------------|-----|-----|--------------------------------|-------------------|--------------------------|
| | | Min | Typ | Group | Flux (lm) @ 85 °C | |
| 4500 K | 4A, 4B, 4C, 4D | 70 | | D4 | 550 | XHP35B-H0-0000-0D0BD40E4 |
| | | | | D2 | 510 | XHP35B-H0-0000-0D0BD20E4 |
| | | | | C4 | 475 | XHP35B-H0-0000-0D0BC40E4 |
| | | 80 | | D2 | 510 | XHP35B-H0-0000-0D0HD20E4 |
| | | | | C4 | 475 | XHP35B-H0-0000-0D0HC40E4 |
| | | | | C2 | 440 | XHP35B-H0-0000-0D0HC20E4 |
| | | 90 | | C2 | 440 | XHP35B-H0-0000-0D0UC20E4 |
| | | | | B4 | 410 | XHP35B-H0-0000-0D0UB40E4 |
| | | | | B2 | 380 | XHP35B-H0-0000-0D0UB20E4 |
| 4000 K | 5A, 5B, 5C, 5D | 70 | | D4 | 550 | XHP35B-H0-0000-0D0BD40E5 |
| | | | | D2 | 510 | XHP35B-H0-0000-0D0BD20E5 |
| | | | | C4 | 475 | XHP35B-H0-0000-0D0BC40E5 |
| | | | | C2 | 440 | XHP35B-H0-0000-0D0BC20E5 |
| | | 80 | | D2 | 510 | XHP35B-H0-0000-0D0HD20E5 |
| | | | | C4 | 475 | XHP35B-H0-0000-0D0HC40E5 |
| | | | | C2 | 440 | XHP35B-H0-0000-0D0HC20E5 |
| | | 90 | | B4 | 410 | XHP35B-H0-0000-0D0UB40E5 |
| | | | | B2 | 380 | XHP35B-H0-0000-0D0UB20E5 |
| 3500 K | 6A, 6B, 6C, 6D | 70 | | D2 | 510 | XHP35B-H0-0000-0D0BD20E6 |
| | | | | C4 | 475 | XHP35B-H0-0000-0D0BC40E6 |
| | | | | C2 | 440 | XHP35B-H0-0000-0D0BC20E6 |
| | | 80 | | C4 | 475 | XHP35B-H0-0000-0D0HC40E6 |
| | | | | C2 | 440 | XHP35B-H0-0000-0D0HC20E6 |
| | | | | B4 | 410 | XHP35B-H0-0000-0D0HB40E6 |
| | | 90 | | B4 | 410 | XHP35B-H0-0000-0D0UB40E6 |
| | | | | B2 | 380 | XHP35B-H0-0000-0D0UB20E6 |
| | | | | A4 | 355 | XHP35B-H0-0000-0D0UA40E6 |

Notes:

- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

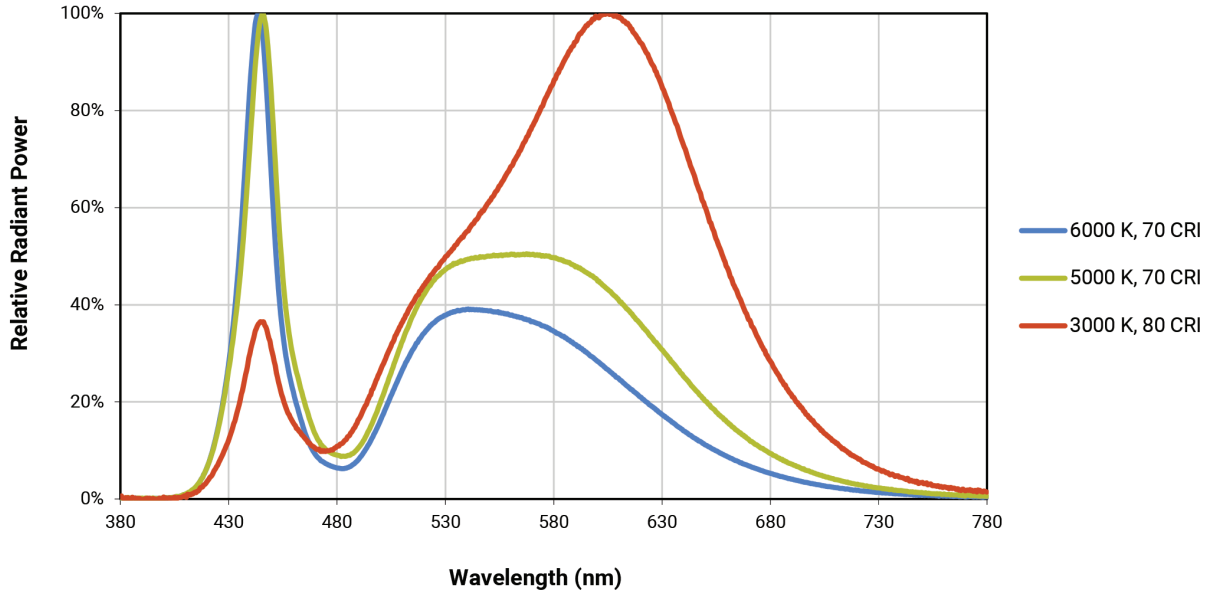
HIGH INTENSITY ANSI ORDER CODES SUGGESTED FOR NEW DESIGNS (12-V) - CONTINUED

| Nominal CCT | Chromaticity Regions | CRI | | Minimum Luminous Flux @ 350 mA | | Order Code |
|-------------|----------------------|-----|-----|--------------------------------|-------------------|--------------------------|
| | | Min | Typ | Group | Flux (lm) @ 85 °C | |
| 3000 K | 7A, 7B, 7C, 7D | 70 | | D2 | 510 | XHP35B-H0-0000-0D0BD20E7 |
| | | | | C4 | 475 | XHP35B-H0-0000-0D0BC40E7 |
| | | | | C2 | 440 | XHP35B-H0-0000-0D0BC20E7 |
| | | 80 | | C4 | 475 | XHP35B-H0-0000-0D0HC20E7 |
| | | | | C2 | 440 | XHP35B-H0-0000-0D0HB40E7 |
| | | | | B4 | 410 | XHP35B-H0-0000-0D0HB20E7 |
| | | 90 | | B4 | 410 | XHP35B-H0-0000-0D0UB40E7 |
| | | | | B2 | 380 | XHP35B-H0-0000-0D0UB20E7 |
| | | | | A4 | 355 | XHP35B-H0-0000-0D0UA40E7 |
| 2700 K | 8A, 8B, 8C, 8D | 80 | | C2 | 440 | XHP35B-H0-0000-0D0HC20E8 |
| | | | | B4 | 410 | XHP35B-H0-0000-0D0HB40E8 |
| | | | | B2 | 380 | XHP35B-H0-0000-0D0HB20E8 |
| | | 90 | | B2 | 380 | XHP35B-H0-0000-0D0UB20E8 |
| | | | | A4 | 355 | XHP35B-H0-0000-0D0UA40E8 |
| | | | | A2 | 330 | XHP35B-H0-0000-0D0UA20E8 |

Notes:

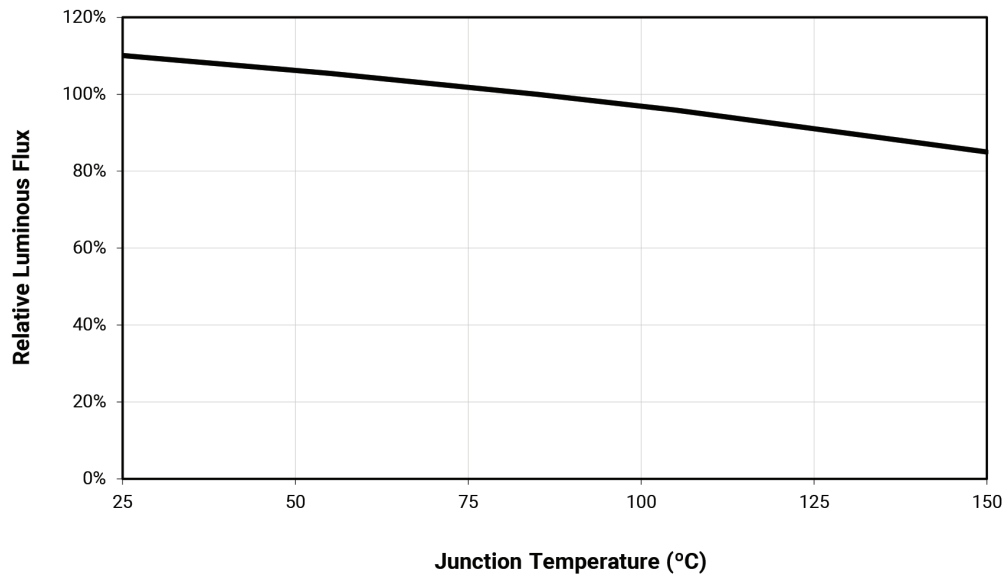
- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).
- XLamp XHP35.2 LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

RELATIVE SPECTRAL POWER DISTRIBUTION

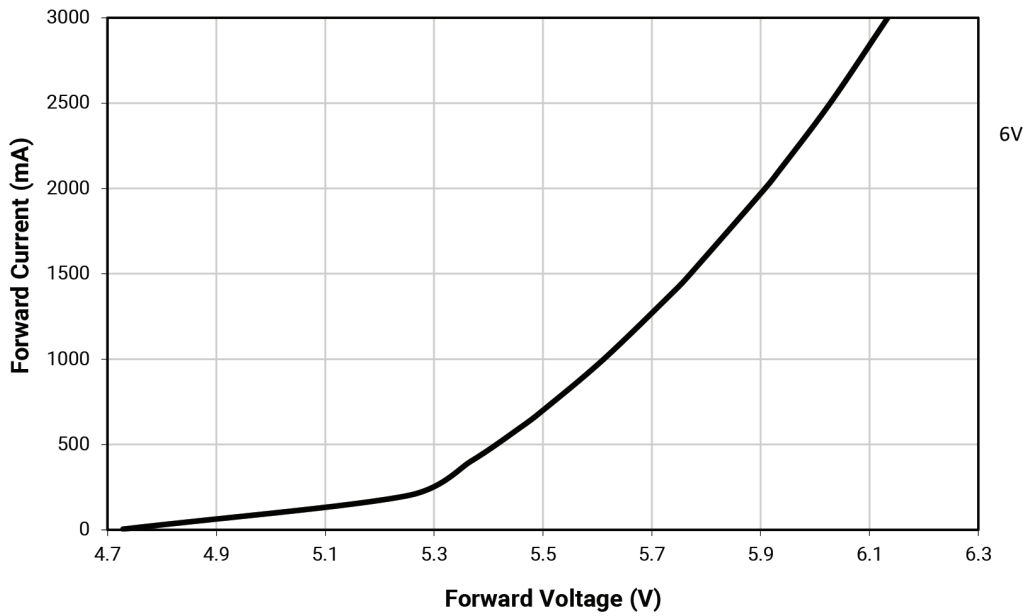
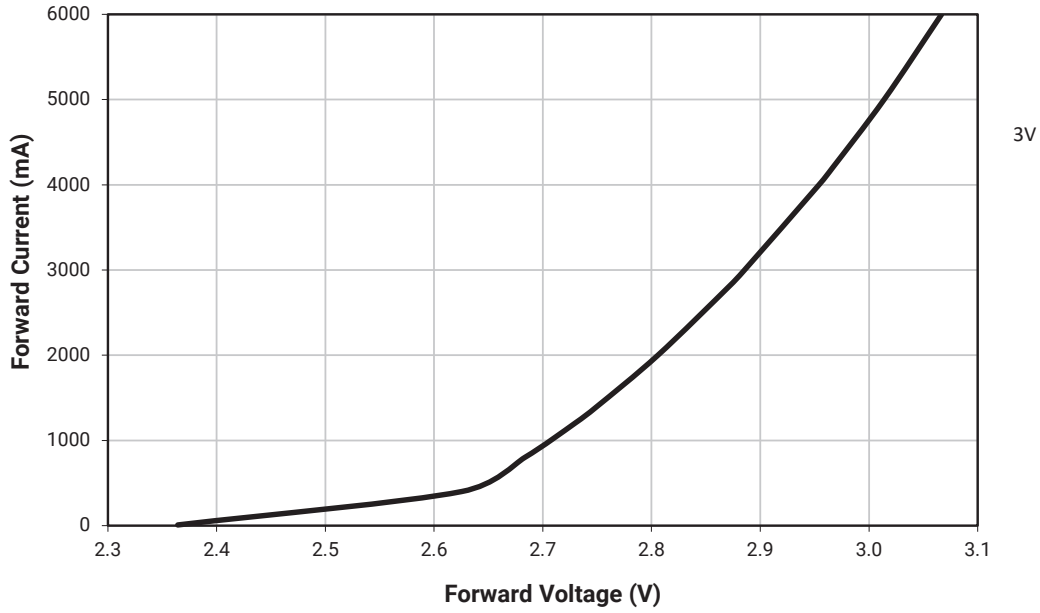


RELATIVE FLUX VS. JUNCTION TEMPERATURE ($I_f = 350 \text{ mA}$)

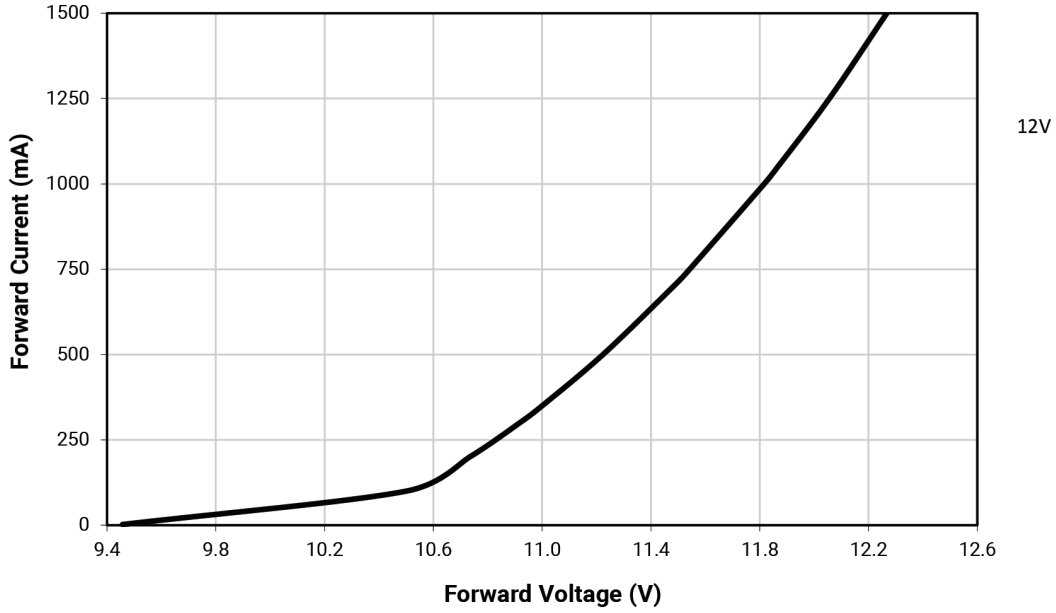
Reference condition: 3-V, $I_r = 1400 \text{ mA}$; 6 V, $I_r = 700 \text{ mA}$; 12 V, $I_r = 350 \text{ mA}$



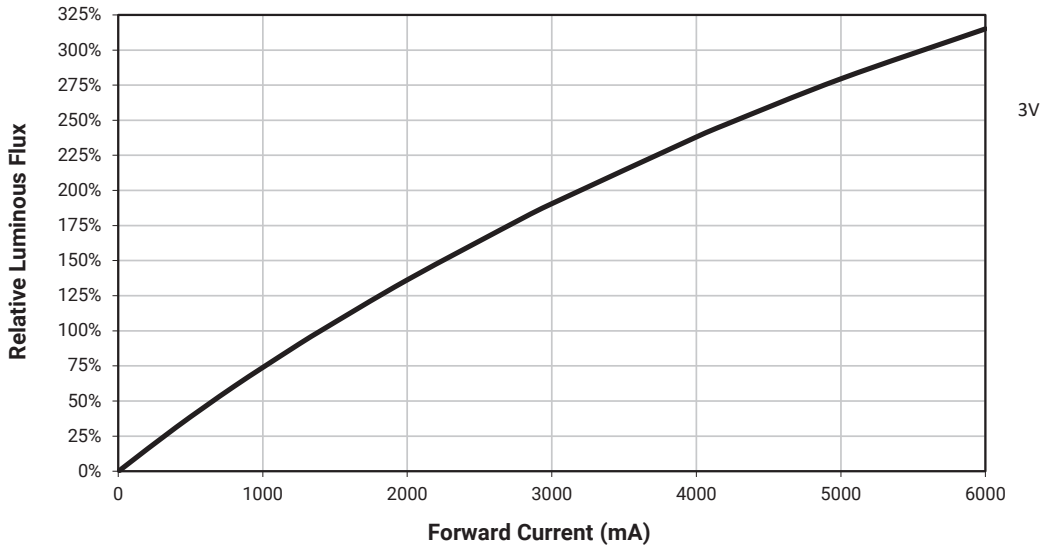
ELECTRICAL CHARACTERISTICS ($T_j = 85^\circ\text{C}$)



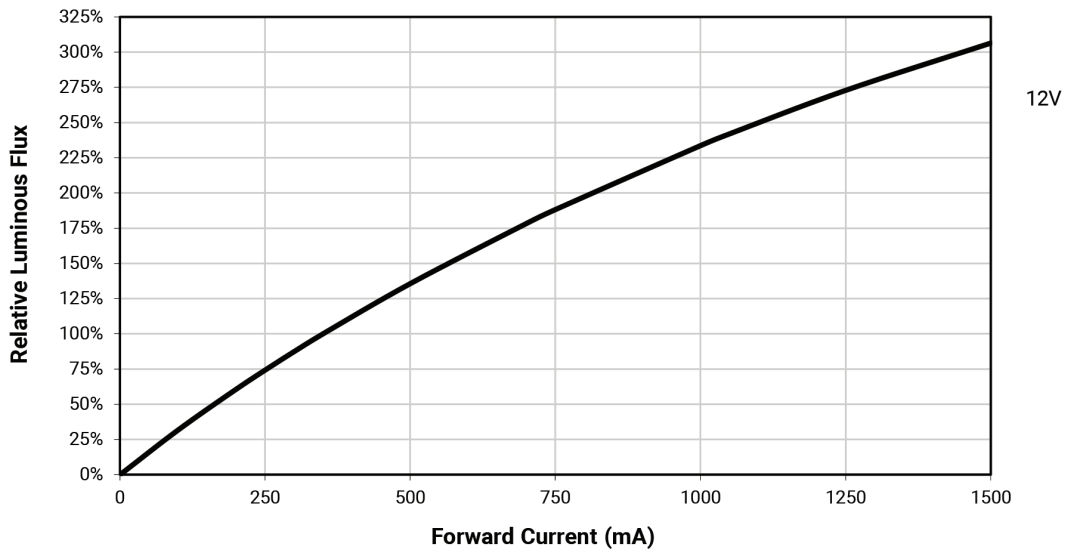
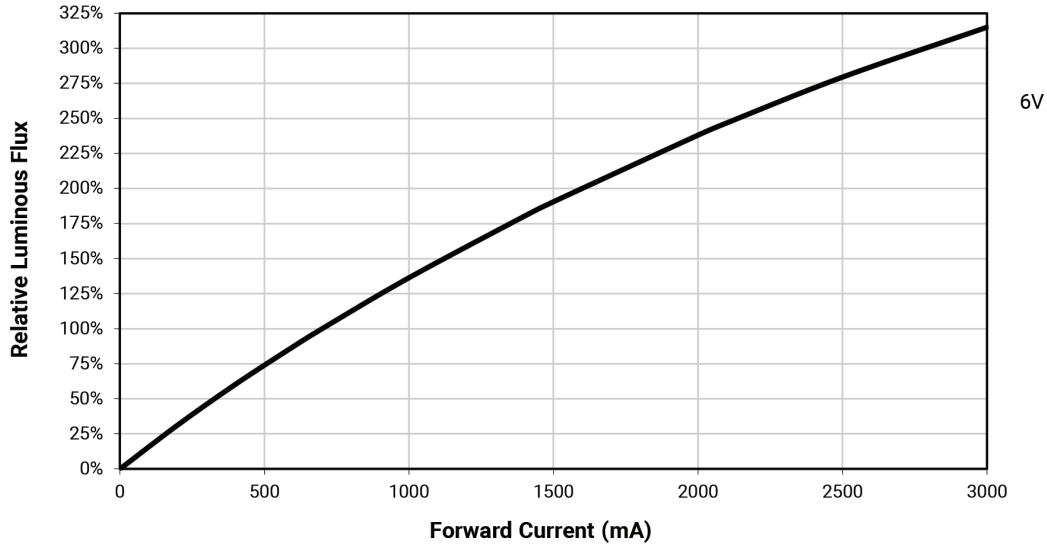
ELECTRICAL CHARACTERISTICS (T_j = 85 °C)- CONTINUED



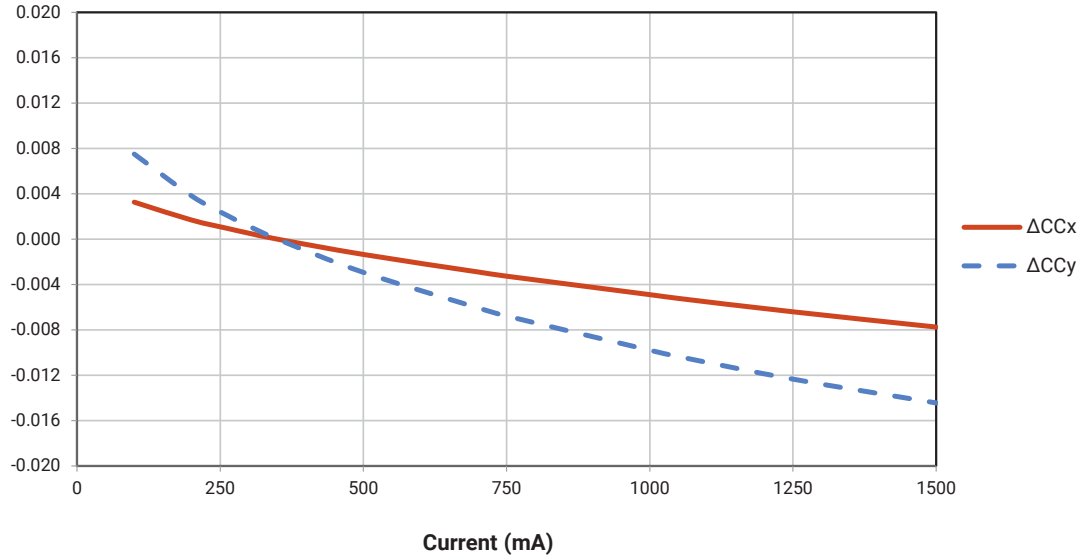
RELATIVE FLUX VS. CURRENT (T_j = 85 °C)



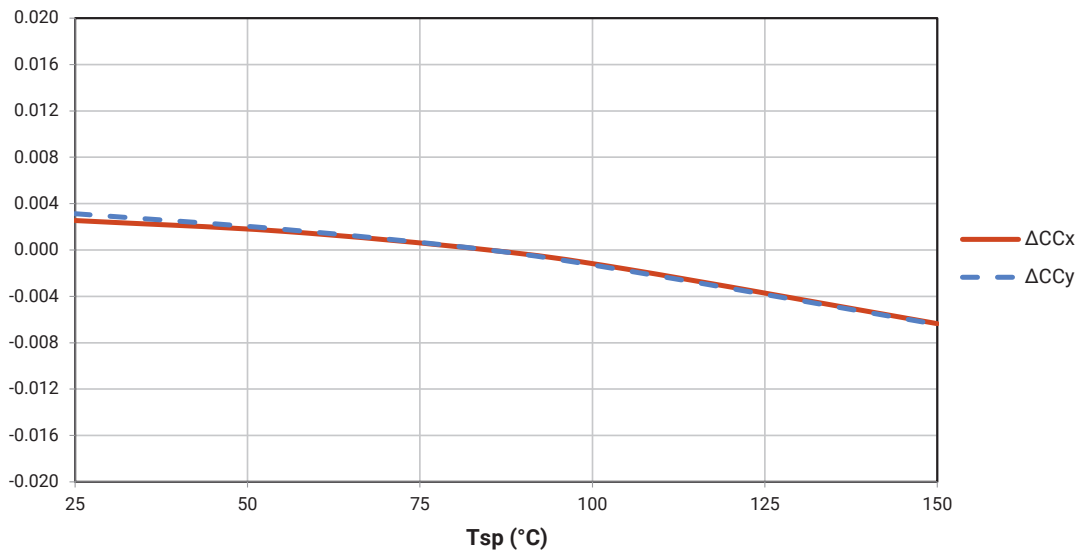
RELATIVE FLUX VS. CURRENT ($T_j = 85\text{ }^\circ\text{C}$) - CONTINUED



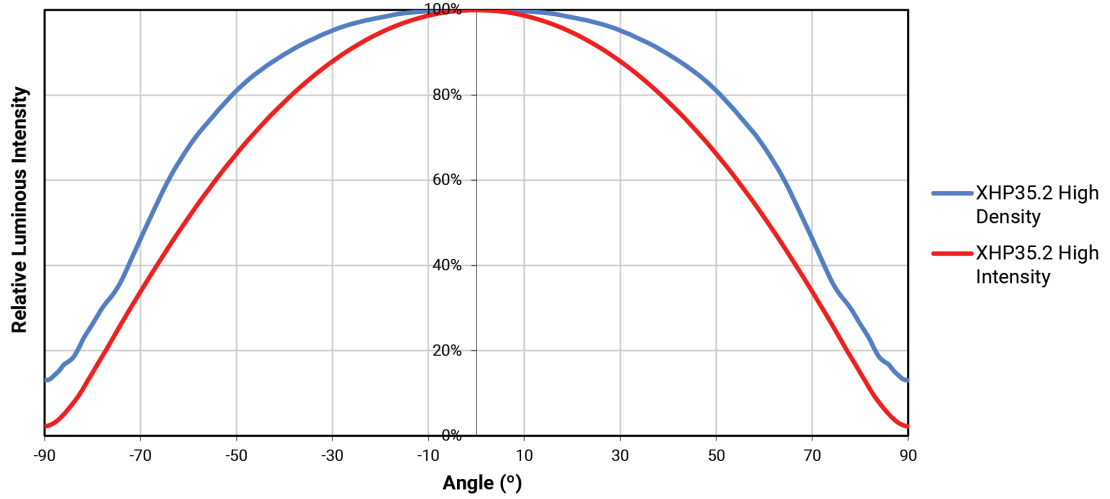
RELATIVE CHROMATICITY VS. CURRENT (WARM WHITE)



RELATIVE CHROMATICITY VS. TEMPERATURE (WARM WHITE)

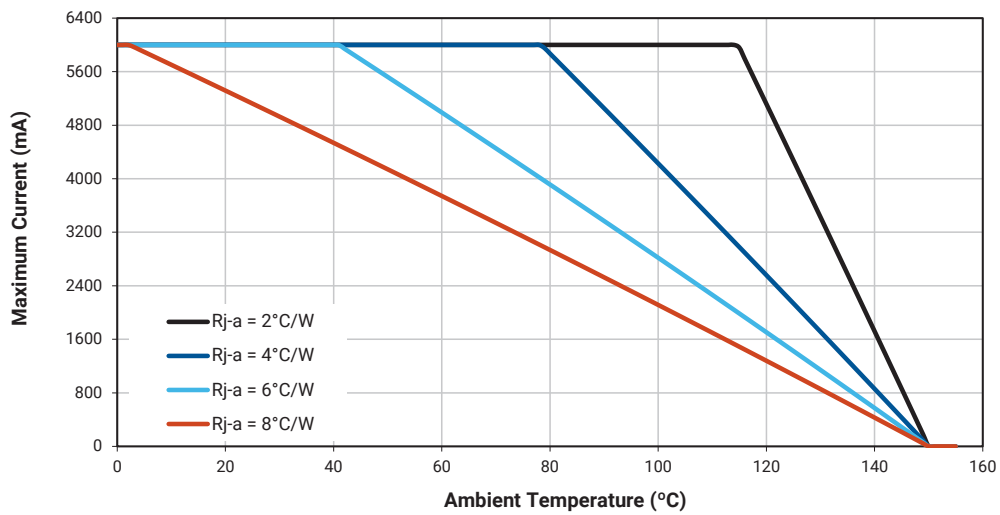


TYPICAL SPATIAL DISTRIBUTION

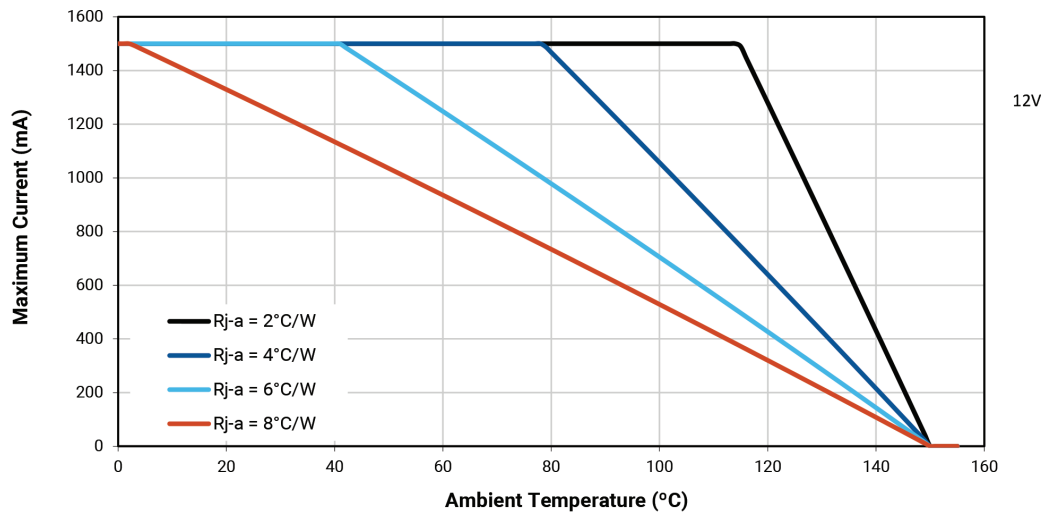
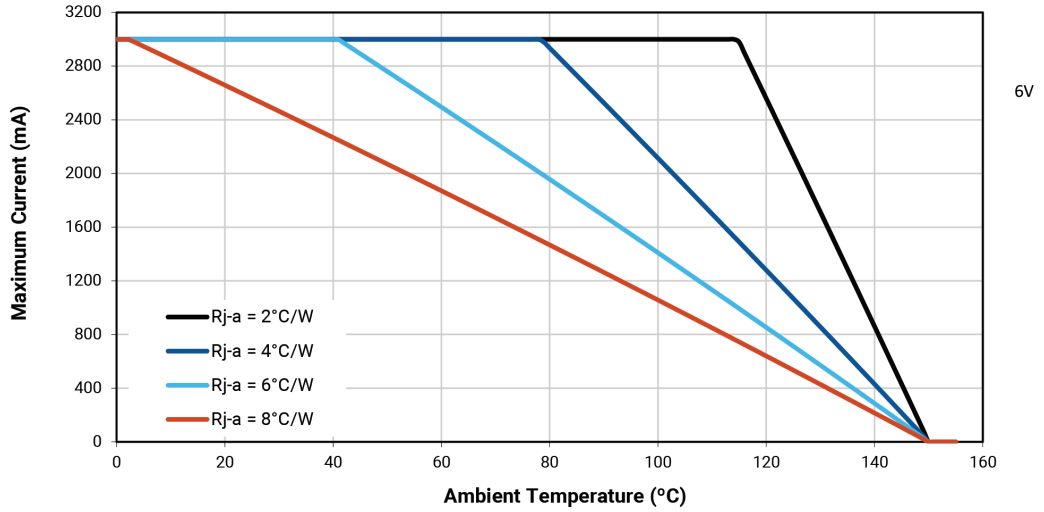


THERMAL DESIGN

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



THERMAL DESIGN- CONTINUED



PERFORMANCE GROUPS - LUMINOUS FLUX ($T_j = 85\text{ }^\circ\text{C}$)

XLamp XHP35.2 LEDs are tested for luminous flux and placed into one of the following luminous-flux groups.

| Group Code | Minimum Luminous Flux (lm) @ 350 mA | Maximum Luminous Flux (lm) @ 350 mA |
|------------|--|--|
| A2 | 330 | 355 |
| A4 | 355 | 380 |
| B2 | 380 | 410 |
| B4 | 410 | 440 |
| C2 | 440 | 475 |
| C4 | 475 | 510 |
| D2 | 510 | 550 |
| D4 | 550 | 590 |
| E2 | 590 | 635 |
| E4 | 635 | 680 |

PERFORMANCE GROUPS - CHROMATICITY

XLamp XHP35.2 LEDs are tested for chromaticity and placed into one of the regions defined by the following bounding coordinates.

| EasyWhite Color Temperatures – 2-Step | | | |
|---------------------------------------|--------|--------|--------|
| Bin Code | CCT | x | y |
| 50H | 5000 K | 0.3429 | 0.3507 |
| | | 0.3434 | 0.3571 |
| | | 0.3475 | 0.3604 |
| | | 0.3469 | 0.3539 |
| 45H | 4500 K | 0.3643 | 0.3720 |
| | | 0.3597 | 0.3689 |
| | | 0.3587 | 0.3620 |
| | | 0.3628 | 0.3647 |
| 40H | 4000 K | 0.3777 | 0.3739 |
| | | 0.3797 | 0.3816 |
| | | 0.3861 | 0.3855 |
| | | 0.3838 | 0.3777 |
| 35H | 3500 K | 0.4022 | 0.3858 |
| | | 0.4053 | 0.3942 |
| | | 0.4125 | 0.3977 |
| | | 0.4091 | 0.3891 |
| 30H | 3000 K | 0.4287 | 0.3975 |
| | | 0.4328 | 0.4064 |
| | | 0.4390 | 0.4086 |
| | | 0.4347 | 0.3996 |
| 27H | 2700 K | 0.4524 | 0.4048 |
| | | 0.4574 | 0.4140 |
| | | 0.4633 | 0.4154 |
| | | 0.4581 | 0.4062 |

| EasyWhite Color Temperatures – 3-Step Ellipse | | | | | | |
|---|--------|--------------|--------|------------|------------|--------------------|
| Bin Code | CCT | Center Point | | Major Axis | Minor Axis | Rotation Angle (°) |
| | | x | y | a | b | |
| 50G | 5000 K | 0.3447 | 0.3553 | 0.00840 | 0.00312 | 65.0 |
| 45G | 4500 K | 0.3611 | 0.3658 | 0.00852 | 0.00330 | 61.5 |
| 40G | 4000 K | 0.3818 | 0.3797 | 0.00939 | 0.00402 | 53.7 |
| 35G | 3500 K | 0.4073 | 0.3917 | 0.00927 | 0.00414 | 54.0 |
| 30G | 3000 K | 0.4338 | 0.4030 | 0.00834 | 0.00408 | 53.2 |
| 27G | 2700 K | 0.4577 | 0.4099 | 0.00834 | 0.00420 | 48.5 |

PERFORMANCE GROUPS - CHROMATICITY - CONTINUED

| EasyWhite Color Temperatures – 5-Step Ellipse | | | | | | |
|---|--------|--------------|--------|------------|------------|--------------------|
| Bin Code | CCT | Center Point | | Major Axis | Minor Axis | Rotation Angle (°) |
| | | x | y | a | b | |
| 57E | 5700 K | 0.3287 | 0.3417 | 0.01230 | 0.00600 | 72.0 |
| 50E | 5000 K | 0.3447 | 0.3553 | 0.01400 | 0.00520 | 65.0 |
| 45E | 4500 K | 0.3611 | 0.3658 | 0.01420 | 0.00550 | 61.5 |
| 40E | 4000 K | 0.3818 | 0.3797 | 0.01565 | 0.00670 | 53.7 |
| 35E | 3500 K | 0.4073 | 0.3917 | 0.01545 | 0.00690 | 54.0 |
| 30E | 3000 K | 0.4338 | 0.4030 | 0.01390 | 0.00680 | 53.2 |
| 27E | 2700 K | 0.4577 | 0.4099 | 0.01350 | 0.00700 | 48.5 |

| ANSI White Bins | | | |
|-----------------|----------|--------|--------|
| CCT | Bin Code | x | y |
| 7000 K | 0A0 | 0.2950 | 0.2970 |
| | | 0.2920 | 0.3060 |
| | | 0.2984 | 0.3133 |
| | | 0.3009 | 0.3042 |
| | 0B0 | 0.2920 | 0.3060 |
| | | 0.2895 | 0.3135 |
| | | 0.2962 | 0.3220 |
| | | 0.2984 | 0.3133 |
| | 0C0 | 0.2984 | 0.3133 |
| | | 0.2962 | 0.3220 |
| | | 0.3028 | 0.3304 |
| | | 0.3048 | 0.3207 |
| 0D0 | 0.2984 | 0.3133 | |
| | 0.3048 | 0.3207 | |
| | 0.3068 | 0.3113 | |
| | 0.3009 | 0.3042 | |

| ANSI White Bins | | | |
|-----------------|----------|--------|--------|
| CCT | Bin Code | x | y |
| 7000 K | 0R0 | 0.2980 | 0.2880 |
| | | 0.2950 | 0.2970 |
| | | 0.3009 | 0.3042 |
| | | 0.3037 | 0.2937 |
| | 0S0 | 0.2895 | 0.3135 |
| | | 0.2870 | 0.3210 |
| | | 0.2937 | 0.3312 |
| | | 0.2962 | 0.3220 |
| | 0T0 | 0.2962 | 0.3220 |
| | | 0.2937 | 0.3312 |
| | | 0.3005 | 0.3415 |
| | | 0.3028 | 0.3304 |
| 0U0 | 0.3037 | 0.2937 | |
| | 0.3009 | 0.3042 | |
| | 0.3068 | 0.3113 | |
| | 0.3093 | 0.2993 | |

| ANSI White Bins | | | |
|-----------------|----------|--------|--------|
| CCT | Bin Code | x | y |
| 7000 K | 1A0 | 0.3048 | 0.3207 |
| | | 0.3130 | 0.3290 |
| | | 0.3144 | 0.3186 |
| | | 0.3068 | 0.3113 |
| | 1B0 | 0.3028 | 0.3304 |
| | | 0.3115 | 0.3391 |
| | | 0.3130 | 0.3290 |
| | | 0.3048 | 0.3207 |
| | 1C0 | 0.3115 | 0.3391 |
| | | 0.3205 | 0.3481 |
| | | 0.3213 | 0.3373 |
| | | 0.3130 | 0.3290 |
| 1D0 | 0.3130 | 0.3290 | |
| | 0.3213 | 0.3373 | |
| | 0.3221 | 0.3261 | |
| | 0.3144 | 0.3186 | |

PERFORMANCE GROUPS - CHROMATICITY - CONTINUED

| ANSI White Bins | | | |
|-----------------|----------|--------|--------|
| CCT | Bin Code | x | y |
| 7000 K | 1R0 | 0.3068 | 0.3113 |
| | | 0.3144 | 0.3186 |
| | | 0.3161 | 0.3059 |
| | | 0.3093 | 0.2993 |
| | 1S0 | 0.3005 | 0.3415 |
| | | 0.3099 | 0.3509 |
| | | 0.3115 | 0.3391 |
| | | 0.3028 | 0.3304 |
| | 1T0 | 0.3099 | 0.3509 |
| | | 0.3196 | 0.3602 |
| | | 0.3205 | 0.3481 |
| | | 0.3115 | 0.3391 |
| | 1U0 | 0.3144 | 0.3186 |
| | | 0.3221 | 0.3261 |
| | | 0.3231 | 0.3120 |
| | | 0.3161 | 0.3059 |

| ANSI White Bins | | | |
|-----------------|----------|--------|--------|
| CCT | Bin Code | x | y |
| 6000 K | 2A0 | 0.3215 | 0.3350 |
| | | 0.3290 | 0.3417 |
| | | 0.3290 | 0.3300 |
| | | 0.3222 | 0.3243 |
| | 2B0 | 0.3207 | 0.3462 |
| | | 0.3290 | 0.3538 |
| | | 0.3290 | 0.3417 |
| | | 0.3215 | 0.3350 |
| | 2C0 | 0.3290 | 0.3538 |
| | | 0.3376 | 0.3616 |
| | | 0.3371 | 0.3490 |
| | | 0.3290 | 0.3417 |
| | 2D0 | 0.3290 | 0.3417 |
| | | 0.3371 | 0.3490 |
| | | 0.3366 | 0.3369 |
| | | 0.3290 | 0.3300 |

| ANSI White Bins | | | |
|-----------------|----------|--------|--------|
| CCT | Bin Code | x | y |
| 6000 K | 2R0 | 0.3222 | 0.3243 |
| | | 0.3290 | 0.3300 |
| | | 0.3290 | 0.3180 |
| | | 0.3231 | 0.3120 |
| | 2S0 | 0.3196 | 0.3602 |
| | | 0.3290 | 0.3690 |
| | | 0.3290 | 0.3538 |
| | | 0.3207 | 0.3462 |
| | 2T0 | 0.3290 | 0.3690 |
| | | 0.3381 | 0.3762 |
| | | 0.3376 | 0.3616 |
| | | 0.3290 | 0.3538 |
| | 2U0 | 0.3290 | 0.3300 |
| | | 0.3366 | 0.3369 |
| | | 0.3361 | 0.3245 |
| | | 0.3290 | 0.3180 |

| ANSI White Bins | | | |
|-----------------|----------|--------|--------|
| CCT | Bin Code | x | y |
| 5000 K | 3A0 | 0.3371 | 0.3490 |
| | | 0.3451 | 0.3554 |
| | | 0.3440 | 0.3427 |
| | | 0.3366 | 0.3369 |
| | 3B0 | 0.3376 | 0.3616 |
| | | 0.3463 | 0.3687 |
| | | 0.3451 | 0.3554 |
| | | 0.3371 | 0.3490 |
| | 3C0 | 0.3463 | 0.3687 |
| | | 0.3551 | 0.3760 |
| | | 0.3533 | 0.3620 |
| | | 0.3451 | 0.3554 |
| | 3D0 | 0.3451 | 0.3554 |
| | | 0.3533 | 0.3620 |
| | | 0.3515 | 0.3487 |
| | | 0.3440 | 0.3427 |

| ANSI White Bins | | | |
|-----------------|----------|--------|--------|
| CCT | Bin Code | x | y |
| 4500 K | 4A0 | 0.3530 | 0.3597 |
| | | 0.3615 | 0.3659 |
| | | 0.3512 | 0.3465 |
| | | 0.3515 | 0.3487 |
| | 4B0 | 0.3548 | 0.3736 |
| | | 0.3641 | 0.3804 |
| | | 0.3530 | 0.3597 |
| | | 0.3533 | 0.362 |
| | 4C0 | 0.3641 | 0.3804 |
| | | 0.3736 | 0.3874 |
| | | 0.3702 | 0.3722 |
| | | 0.3615 | 0.3659 |
| | 4D0 | 0.3615 | 0.3659 |
| | | 0.3702 | 0.3722 |
| | | 0.3670 | 0.3578 |
| | | 0.3590 | 0.3521 |

| ANSI White Bins | | | |
|-----------------|----------|--------|--------|
| CCT | Bin Code | x | y |
| 4000 K | 5A0 | 0.3670 | 0.3578 |
| | | 0.3702 | 0.3722 |
| | | 0.3825 | 0.3798 |
| | | 0.3783 | 0.3646 |
| | 5B0 | 0.3702 | 0.3722 |
| | | 0.3736 | 0.3874 |
| | | 0.3869 | 0.3958 |
| | | 0.3825 | 0.3798 |
| | 5C0 | 0.3825 | 0.3798 |
| | | 0.3869 | 0.3958 |
| | | 0.4006 | 0.4044 |
| | | 0.3950 | 0.3875 |
| | 5D0 | 0.3783 | 0.3646 |
| | | 0.3825 | 0.3798 |
| | | 0.3950 | 0.3875 |
| | | 0.3898 | 0.3716 |

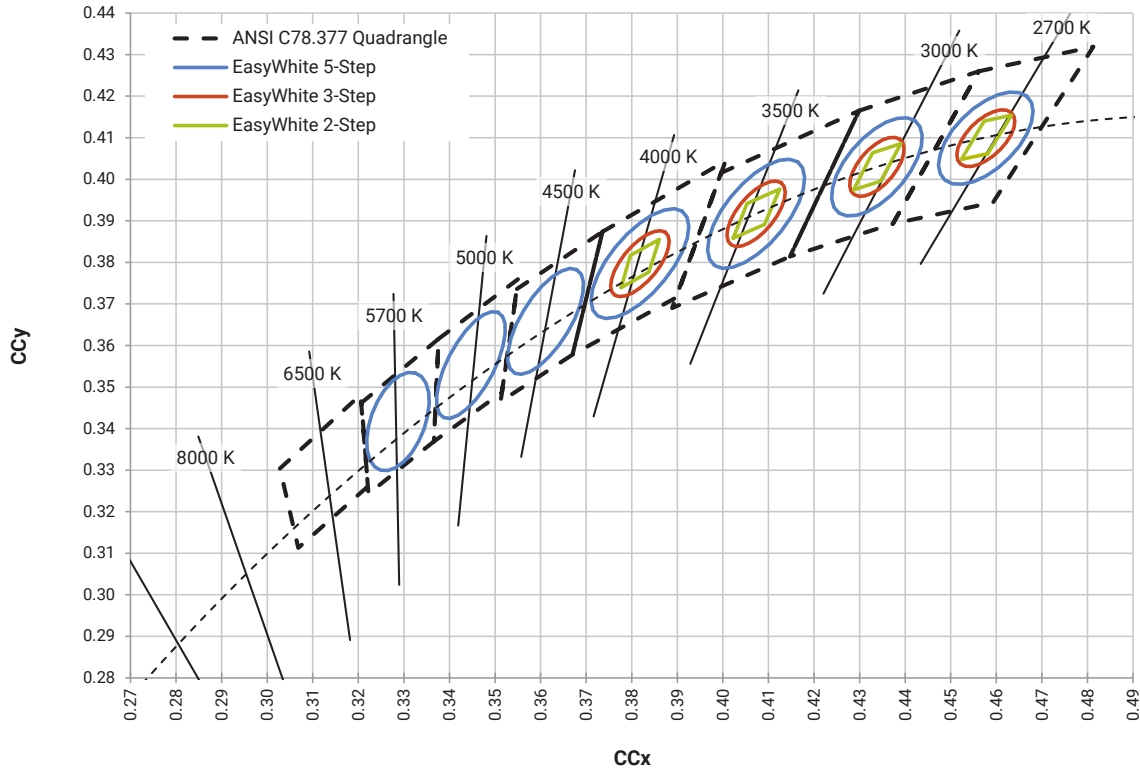
PERFORMANCE GROUPS - CHROMATICITY - CONTINUED

| ANSI White Bins | | | |
|-----------------|----------|--------|--------|
| CCT | Bin Code | x | y |
| 3500 K | 6A0 | 0.3889 | 0.3690 |
| | | 0.3941 | 0.3848 |
| | | 0.4080 | 0.3916 |
| | | 0.4017 | 0.3751 |
| | 6B0 | 0.3941 | 0.3848 |
| | | 0.3996 | 0.4015 |
| | | 0.4146 | 0.4089 |
| | | 0.4080 | 0.3916 |
| | 6C0 | 0.4080 | 0.3916 |
| | | 0.4146 | 0.4089 |
| | | 0.4299 | 0.4165 |
| | | 0.4221 | 0.3984 |
| | 6D0 | 0.4017 | 0.3751 |
| | | 0.4080 | 0.3916 |
| | | 0.4221 | 0.3984 |
| | | 0.4147 | 0.3814 |

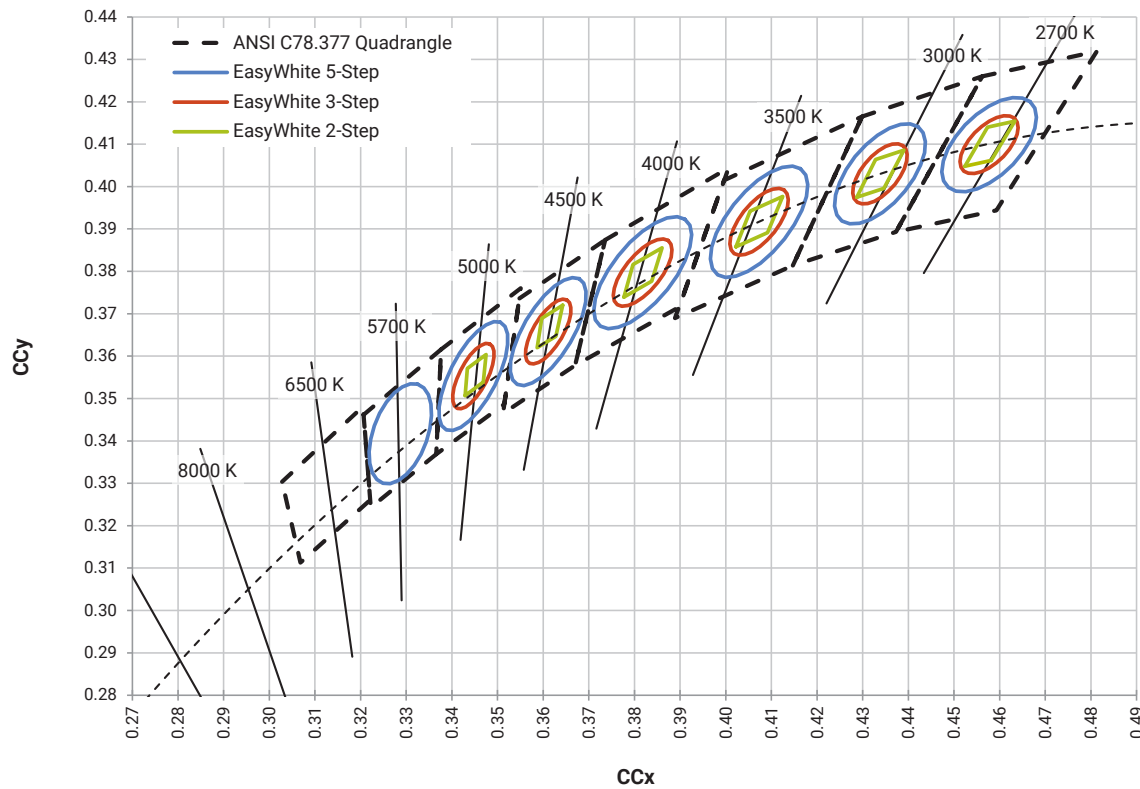
| ANSI White Bins | | | |
|-----------------|----------|--------|--------|
| CCT | Bin Code | x | y |
| 3000 K | 7A0 | 0.4147 | 0.3814 |
| | | 0.4221 | 0.3984 |
| | | 0.4342 | 0.4028 |
| | | 0.4259 | 0.3853 |
| | 7B0 | 0.4221 | 0.3984 |
| | | 0.4299 | 0.4165 |
| | | 0.4430 | 0.4212 |
| | | 0.4342 | 0.4028 |
| | 7C0 | 0.4342 | 0.4028 |
| | | 0.4430 | 0.4212 |
| | | 0.4562 | 0.4260 |
| | | 0.4465 | 0.4071 |
| | 7D0 | 0.4259 | 0.3853 |
| | | 0.4342 | 0.4028 |
| | | 0.4465 | 0.4071 |
| | | 0.4373 | 0.3893 |

| ANSI White Bins | | | |
|-----------------|----------|--------|--------|
| CCT | Bin Code | x | y |
| 2700 K | 8A0 | 0.4373 | 0.3893 |
| | | 0.4465 | 0.4071 |
| | | 0.4582 | 0.4099 |
| | | 0.4483 | 0.3919 |
| | 8B0 | 0.4465 | 0.4071 |
| | | 0.4562 | 0.4260 |
| | | 0.4687 | 0.4289 |
| | | 0.4582 | 0.4099 |
| | 8C0 | 0.4582 | 0.4099 |
| | | 0.4687 | 0.4289 |
| | | 0.4813 | 0.4319 |
| | | 0.4700 | 0.4126 |
| | 8D0 | 0.4483 | 0.3919 |
| | | 0.4582 | 0.4099 |
| | | 0.4700 | 0.4126 |
| | | 0.4593 | 0.3944 |

EASYWHITE® CHROMATICITY REGIONS PLOTTED ON THE 1931 CIE CURVE

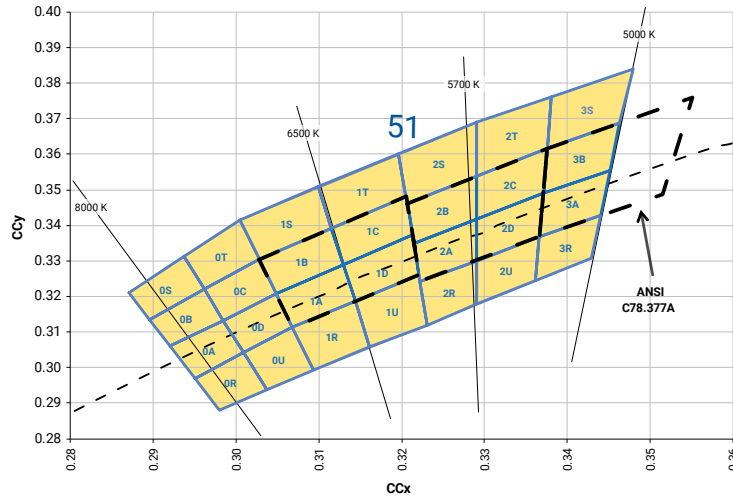
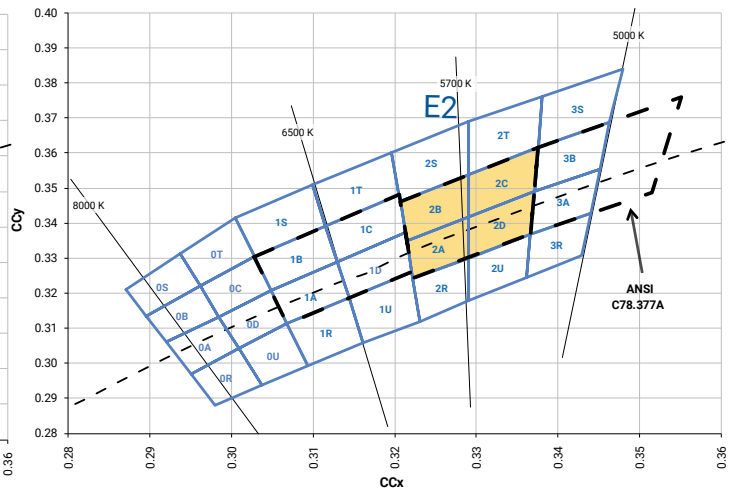
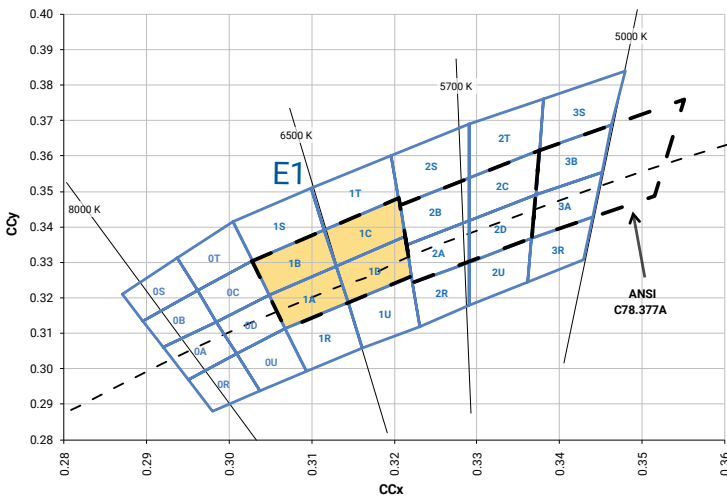
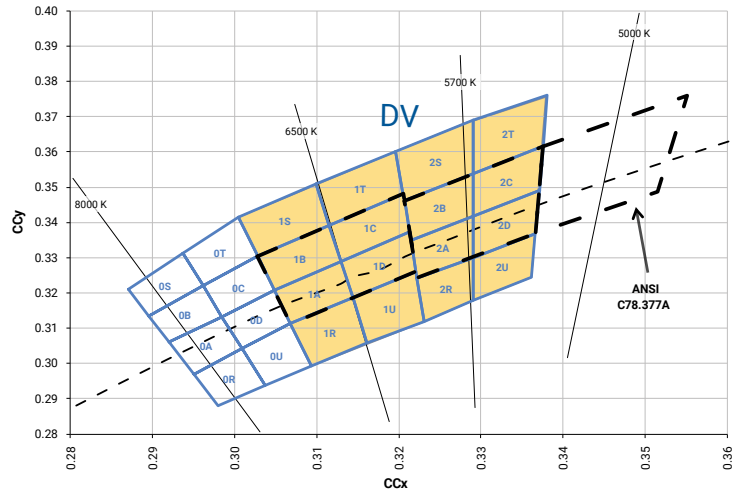
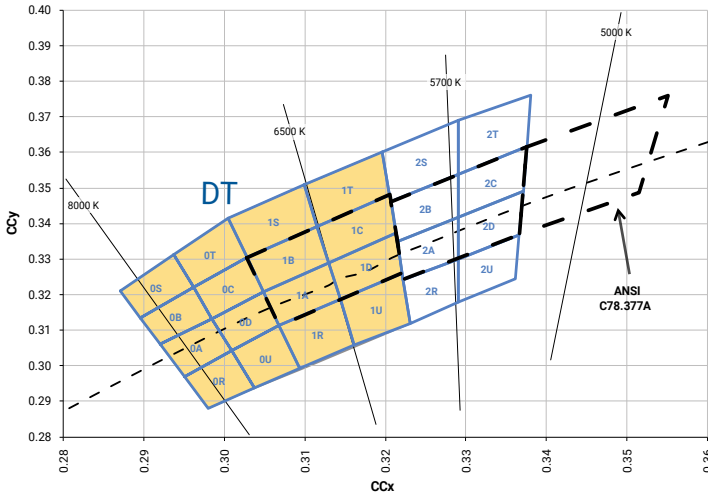


XHP35.2 High Density

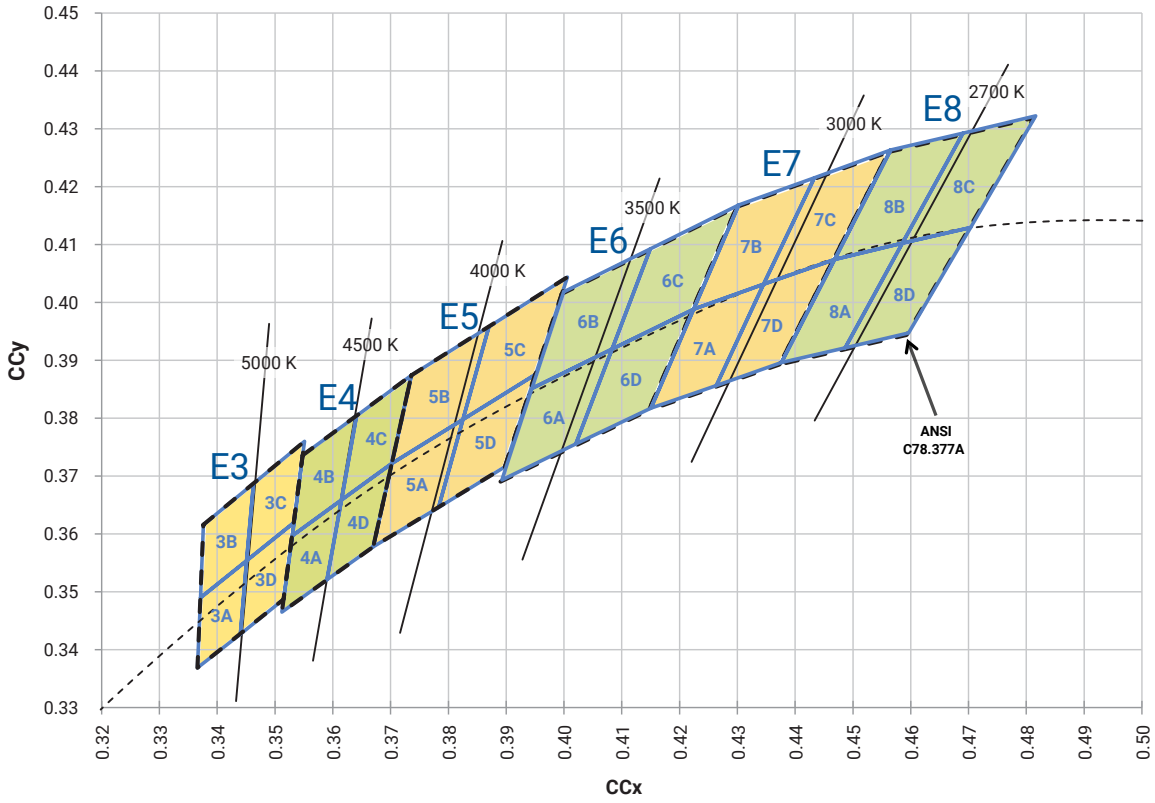


XHP35.2 High Intensity

STANDARD COOL WHITE KITS PLOTTED ON ANSI STANDARD CHROMATICITY REGIONS

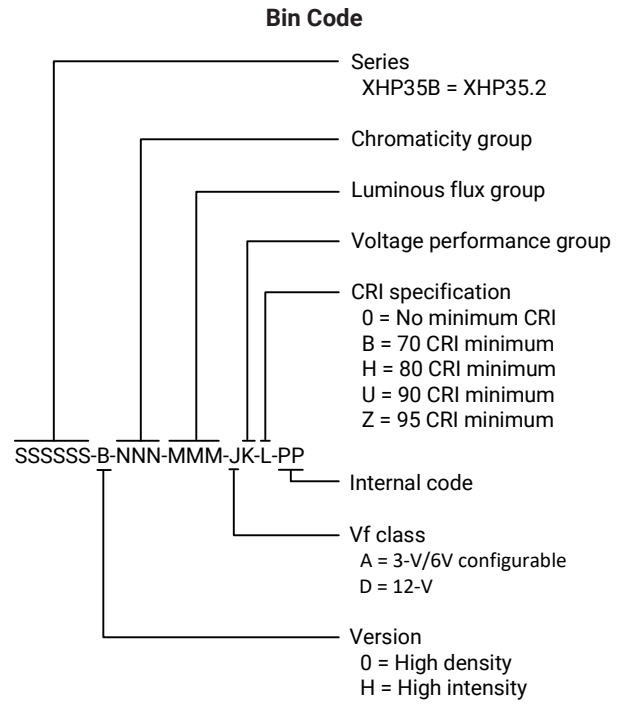
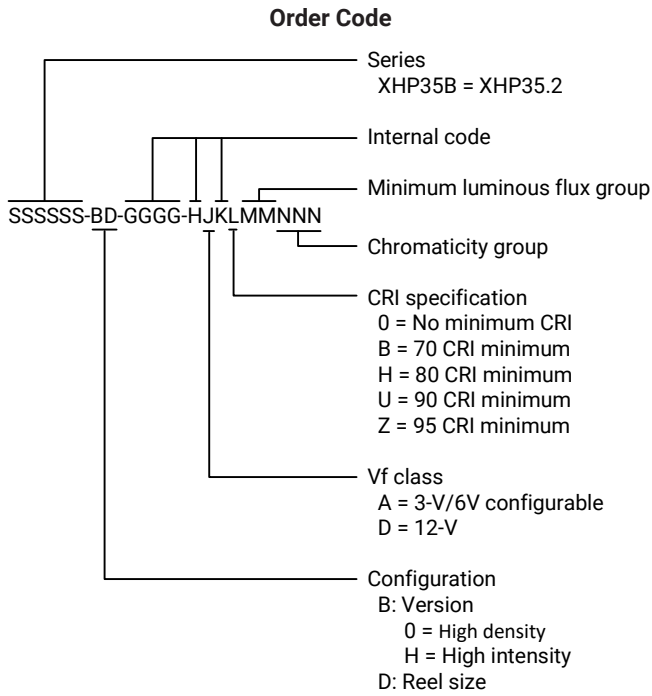


STANDARD WARM AND NEUTRAL WHITE KITS PLOTTED ON ANSI STANDARD CHROMATICITY REGIONS



BIN AND ORDER CODE FORMATS

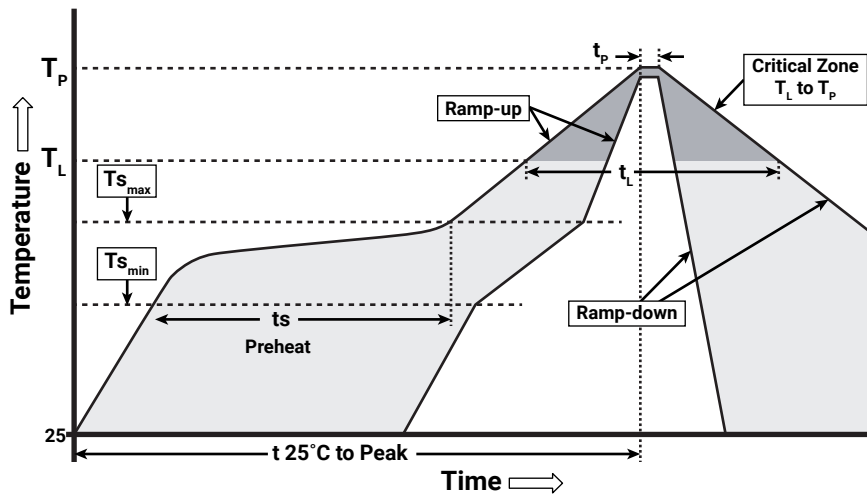
Bin codes and order codes for XHP35.2 LEDs are configured in the following manner:



REFLOW SOLDERING CHARACTERISTICS

In testing, Cree LED has found XLamp XHP35.2 LEDs to be compatible with JEDEC J-STD-020C, using the parameters listed below. As a general guideline, Cree LED recommends that users follow the recommended soldering profile provided by the manufacturer of the solder paste used, and therefore it is the lamp or luminaire manufacturer’s responsibility to determine applicable soldering requirements.

Note that this general guideline may not apply to all PCB designs and configurations of reflow soldering equipment.



IPC/JEDEC J-STD-020C

| Profile Feature | Lead-Free Solder |
|---|------------------|
| Average Ramp-Up Rate ($T_{s_{max}}$ to T_P) | 1.2 °C/second |
| Preheat: Temperature Min ($T_{s_{min}}$) | 120 °C |
| Preheat: Temperature Max ($T_{s_{max}}$) | 170 °C |
| Preheat: Time ($t_{s_{min}}$ to $t_{s_{max}}$) | 65-150 seconds |
| Time Maintained Above: Temperature (T_L) | 217 °C |
| Time Maintained Above: Time (t_L) | 45-90 seconds |
| Peak/Classification Temperature (T_P) | 235 - 245 °C |
| Time Within 5 °C of Actual Peak Temperature (t_p) | 20-40 seconds |
| Ramp-Down Rate | 1 - 6 °C/second |
| Time 25 °C to Peak Temperature | 4 minutes max. |

Note: All temperatures refer to the topside of the package, measured on the package body surface.

NOTES

Measurements

The luminous flux, radiant power, chromaticity, forward voltage and CRI measurements in this document are binning specifications only and solely represent product measurements as of the date of shipment. These measurements will change over time based on a number of factors that are not within Cree LED's control and are not intended or provided as operational specifications for the products. Calculated values are provided for informational purposes only and are not intended or provided as specifications.

Pre-Release Qualification Testing

Please read the [LED Reliability Overview](#) for details of the qualification process Cree LED applies to ensure long-term reliability for XLamp LEDs and details of Cree LED's pre-release qualification testing for XLamp LEDs.

Lumen Maintenance

Cree LED now uses standardized IES LM-80-08 and TM-21-11 methods for collecting long-term data and extrapolating LED lumen maintenance. For information on the specific LM-80 data sets available for this LED, refer to the public [LM-80 results document](#).

Please read the [Long-Term Lumen Maintenance application note](#) for more details on Cree LED's lumen maintenance testing and forecasting. Please read the [Thermal Management application note](#) for details on how thermal design, ambient temperature, and drive current affect the LED junction temperature.

Moisture Sensitivity

Cree LED recommends keeping XLamp LEDs in the provided, resealable moisture-barrier packaging (MBP) until immediately prior to soldering. Unopened MBPs that contain XLamp LEDs do not need special storage for moisture sensitivity.

Once the MBP is opened, XLamp XHP35.2 LEDs may be stored as MSL 1 per JEDEC J-STD-033, meaning they have unlimited floor life in conditions of ≤ 30 °C/85% relative humidity (RH). Regardless of the storage condition, Cree LED recommends sealing any unsoldered LEDs in the original MBP.

RoHS Compliance

The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC (RoHS2), as implemented January 2, 2013. RoHS Declarations for this product can be obtained from your Cree LED representative or from the [Product Ecology](#) section of the Cree LED website.

REACH Compliance

REACH substances of very high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, please contact a Cree LED representative to insure you get the most up-to-date REACH SVHC Declaration. REACH banned substance information (REACH Article 67) is also available upon request.

NOTES - CONTINUED

UL® Recognized Component

This product meets the requirements to be considered a UL Recognized Component with Level 4 enclosure consideration. The LED package or a portion thereof has been investigated as a fire and electrical enclosure per ANSI/UL 8750.

Vision Advisory

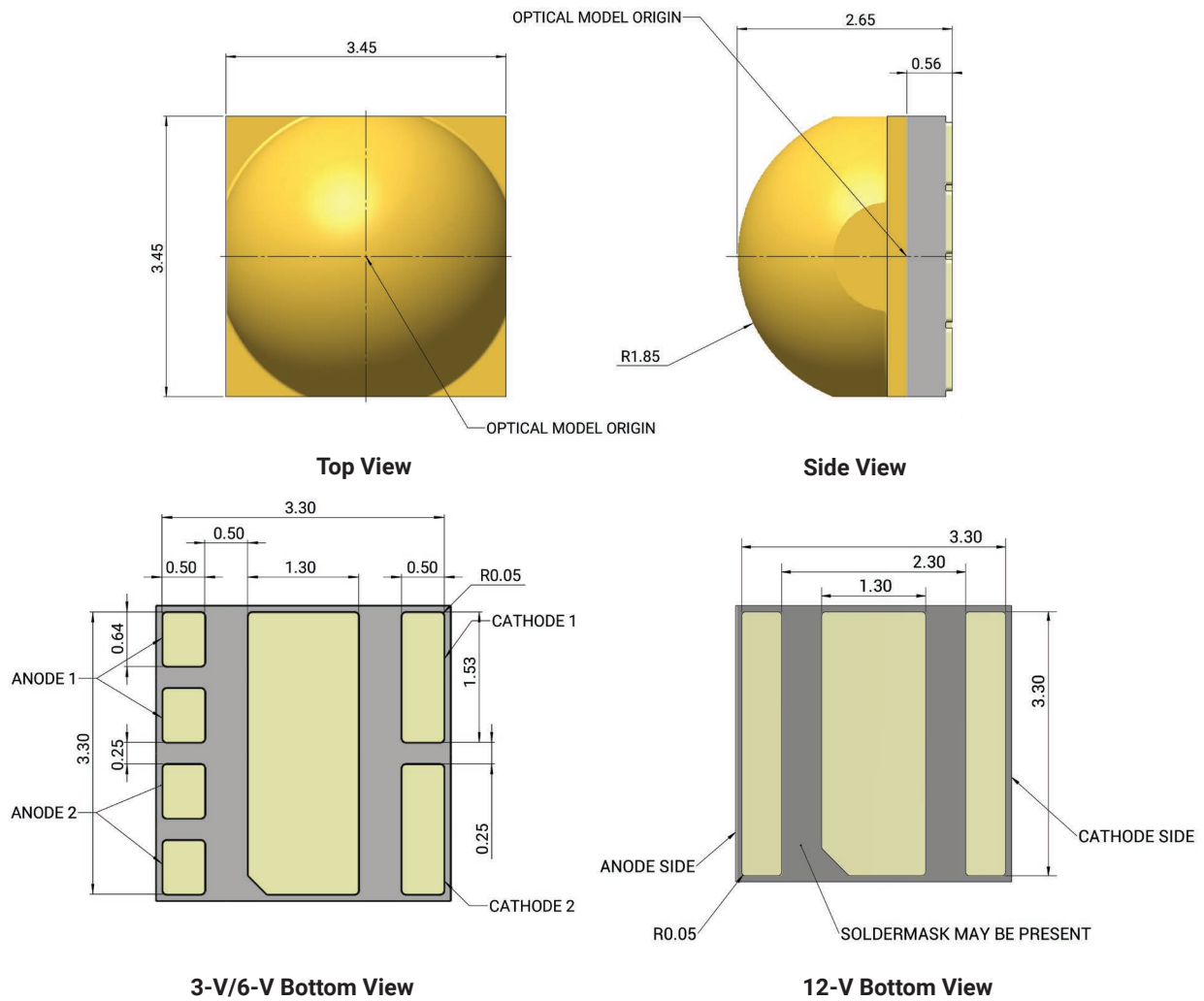
WARNING: Do not look at an exposed lamp in operation. Eye injury can result. For more information about LEDs and eye safety, please refer to the [LED Eye Safety application note](#).

MECHANICAL DIMENSIONS

Thermal vias, if present, are not shown on these drawings.

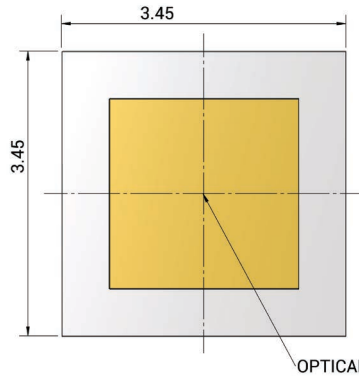
All dimensions are ± 0.13 mm unless otherwise indicated.

XHP35.2 High Density

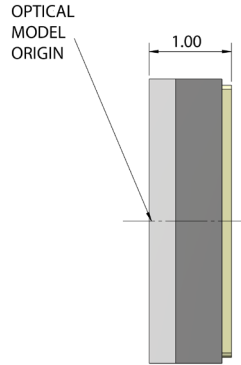


MECHANICAL DIMENSIONS - CONTINUED

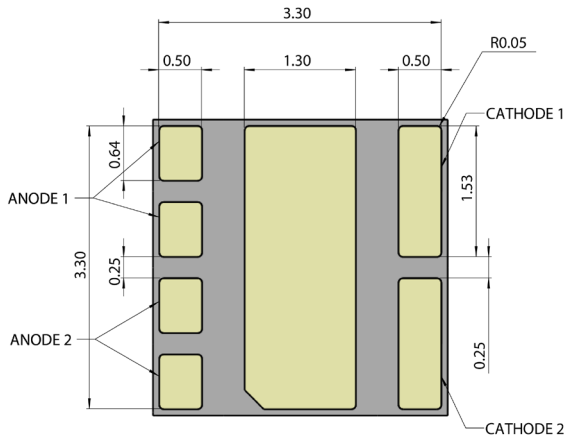
XHP35.2 High Intensity



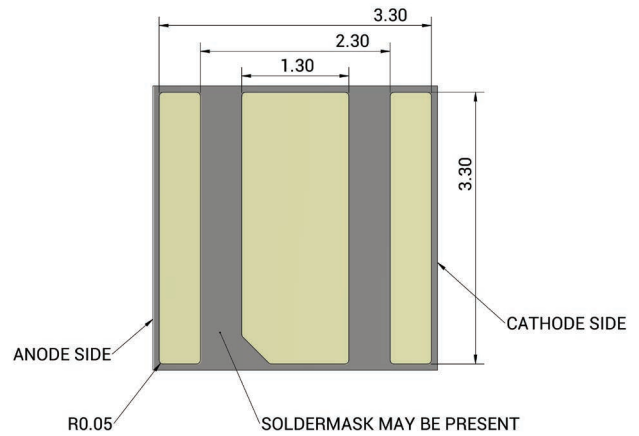
Top View



Side View



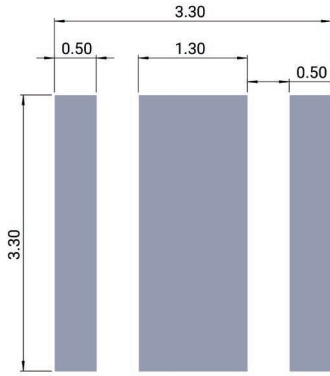
3-V/6-V Bottom View



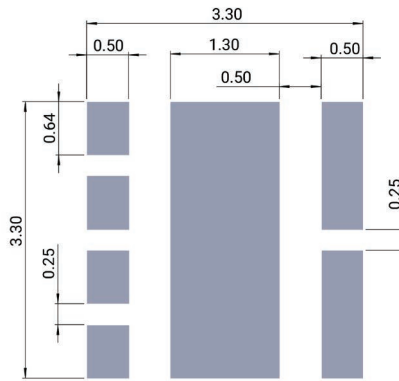
12-V Bottom View

MECHANICAL DIMENSIONS - CONTINUED

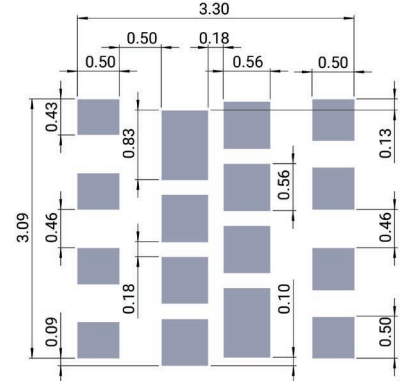
XHP35.2 High Density and XHP35.2 High Intensity



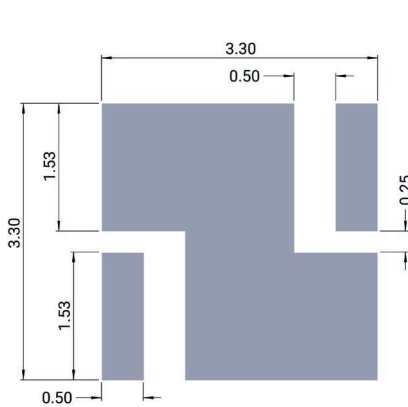
**Recommended 3-V
PCB Footprint
(Center Pad is
Electrically Isolated)**



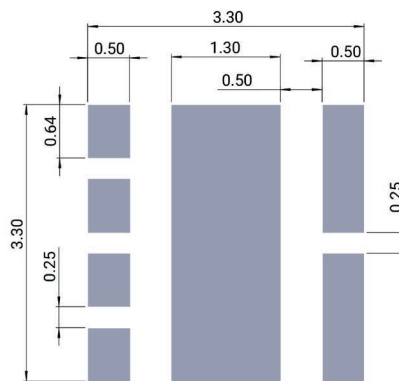
**Recommended 3-V
Solder Mask Opening**



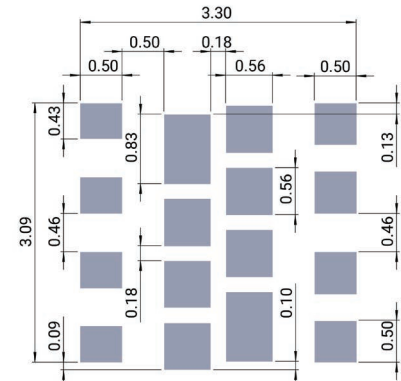
**Recommended 3-V
Stencil Openings***



**Recommended 6-V
PCB Footprint
(Center Pad is Connected to
Anode and Cathode and is
not Electrically Isolated)**



**Recommended 6-V
Solder Mask Opening**



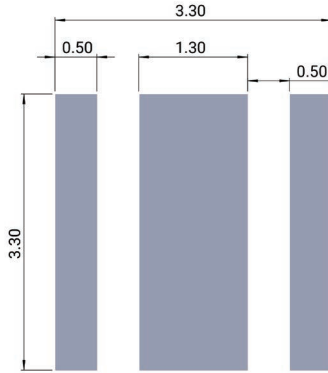
**Recommended 6-V
Stencil Openings***

Notes:

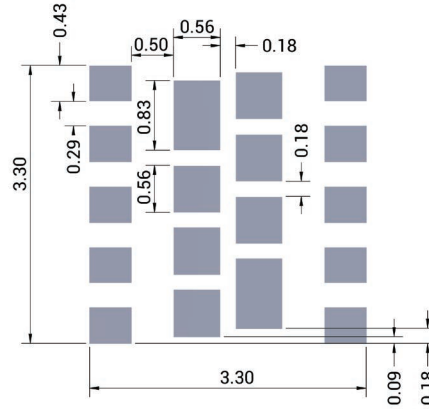
- Cree LED recommends using thermal pad kickouts to maximize component thermal performance.
- Cree LED recommends using white solder mask material to minimize system optical loss.
- * This stencil has been tested and optimized for the avoidance of voiding when using ALPHA® LUMET® P30 Maxrel solder paste. For other solder pastes, a “window pane” design for the thermal pad stencil may result in a lower voiding percentage. Contact your local Cree LED Field Applications Engineer for consultation regarding your specific application.

MECHANICAL DIMENSIONS - CONTINUED

XHP35.2 High Density and XHP35.2 High Intensity



**Recommended 12-V
PCB Footprint
(Center Pad is
Electrically Isolated)**

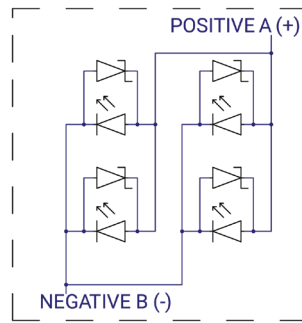


**Recommended 12-V
Stencil Openings***

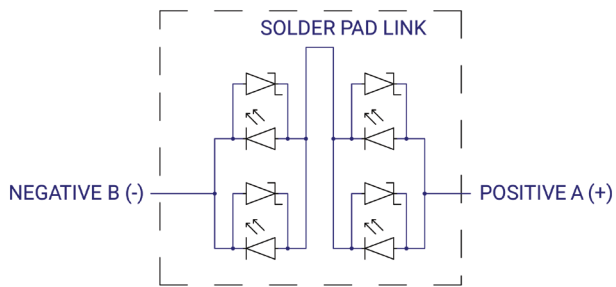
Notes:

- Cree LED recommends using thermal pad kickouts to maximize component thermal performance.
- Cree LED recommends using white solder mask material to minimize system optical loss.
- * This stencil has been tested and optimized for the avoidance of voiding when using ALPHA® LUMET® P30 Maxrel solder paste. For other solder pastes, a “window pane” design for the thermal pad stencil may result in a lower voiding percentage. Contact your local Cree LED Field Applications Engineer for consultation regarding your specific application.

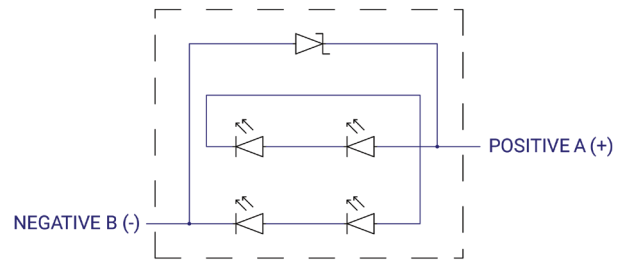
ELECTRICAL CONFIGURATION



3-V Configuration



6-V Configuration



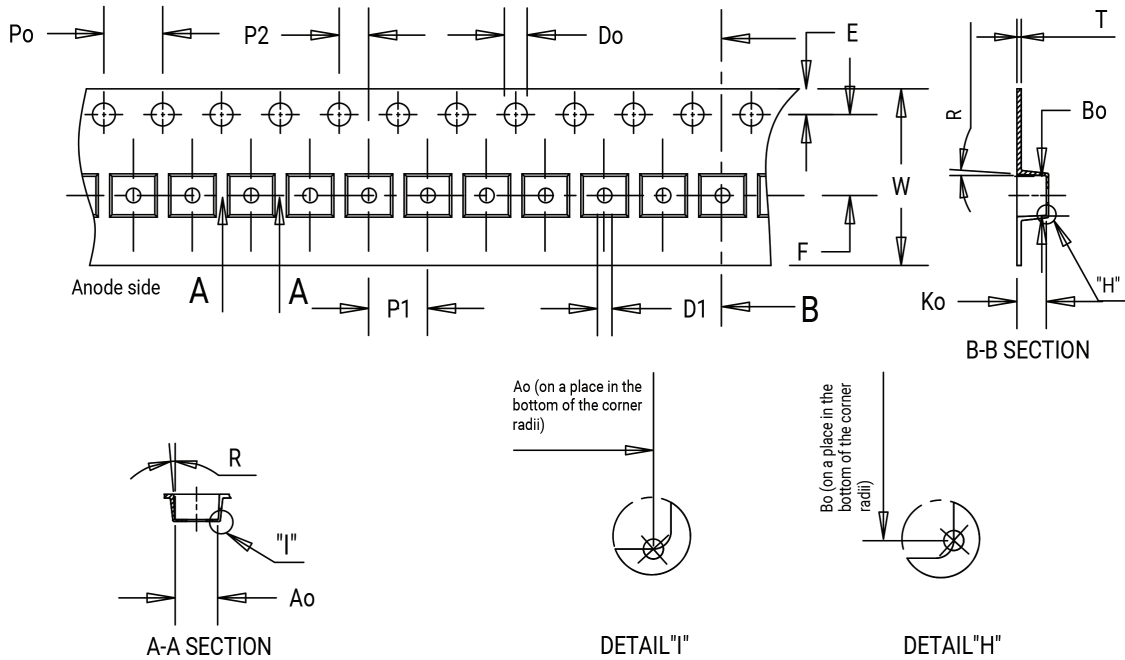
12-V Configuration

TAPE AND REEL

All Cree LED carrier tapes conform to EIA-481D, Automated Component Handling Systems Standard.

Except as noted, all dimensions in mm

All measurements are ±0.13 mm unless otherwise indicated.



XHP35.2 High Density

XHP35B-0x-xxxx-xxxxxxxxxx

↑ XHP35.2 High Density

| Item | Ao | Bo | Ko | Po | P1 | P2 | T | E | F | Do | D1 | W | R |
|-----------|------|------|------|------|------|------|------|------|------|------|------|-------|----|
| Dimension | 3.60 | 3.60 | 3.00 | 4.00 | 8.00 | 2.00 | 0.30 | 1.75 | 5.50 | 1.50 | 1.50 | 12.00 | 3° |

XHP35.2 High Intensity

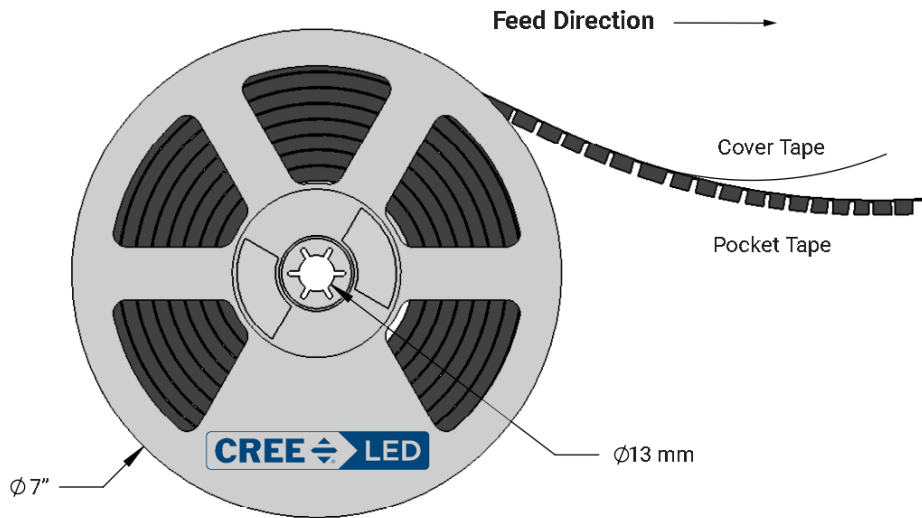
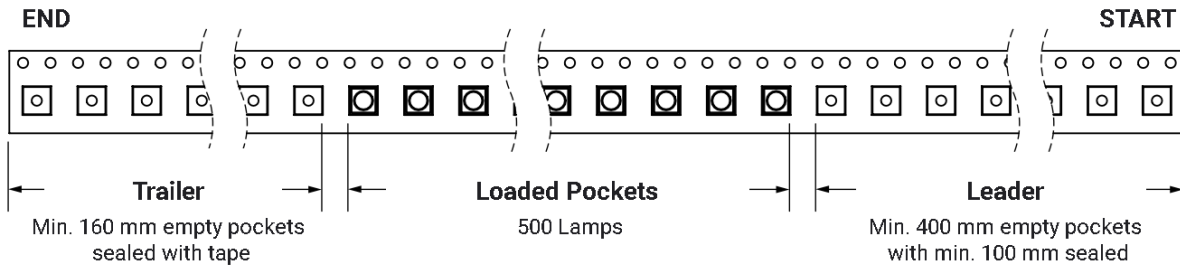
XHP35B-Hx-xxxx-xxxxxxxxxx

↑ XHP35.2 High Intensity

| Item | Ao | Bo | Ko | Po | P1 | P2 | T | E | F | Do | D1 | W | R |
|-----------|------|------|------|------|------|------|------|------|------|------|------|-------|----|
| Dimension | 3.70 | 3.70 | 1.20 | 4.00 | 8.00 | 2.00 | 0.30 | 1.75 | 5.50 | 1.50 | 1.50 | 12.00 | 3° |

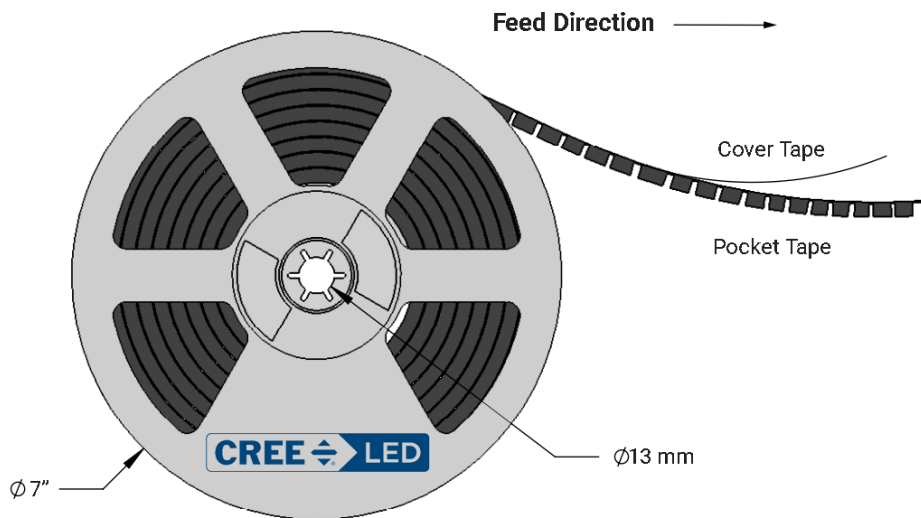
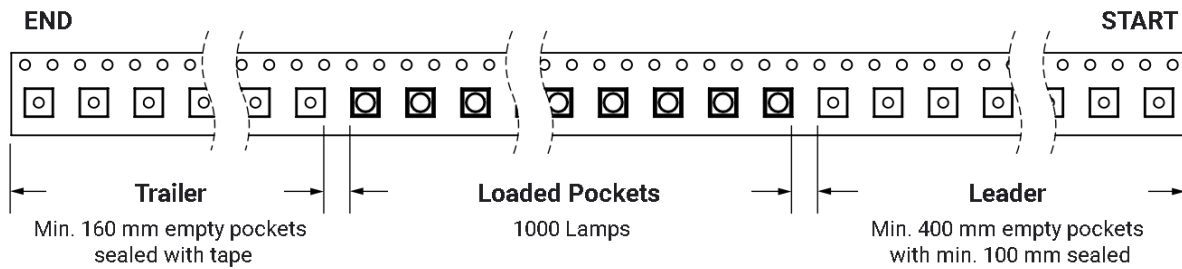
TAPE AND REEL - CONTINUED

XHP35.2 High Density



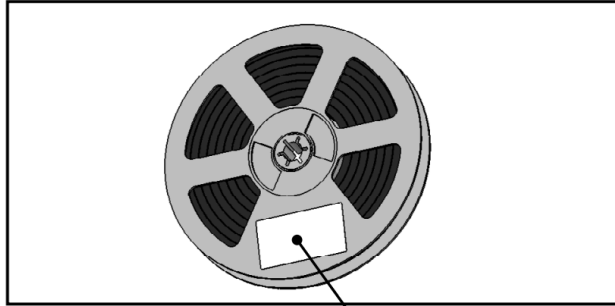
TAPE AND REEL - CONTINUED

XHP35.2 High Intensity



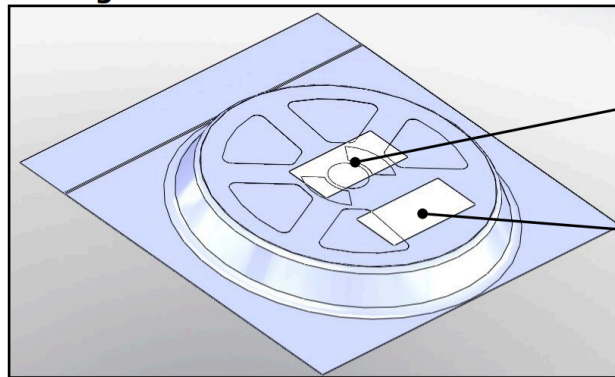
PACKAGING

Unpackaged Reel



Label with Cree LED Bin Code, Quantity, Reel ID

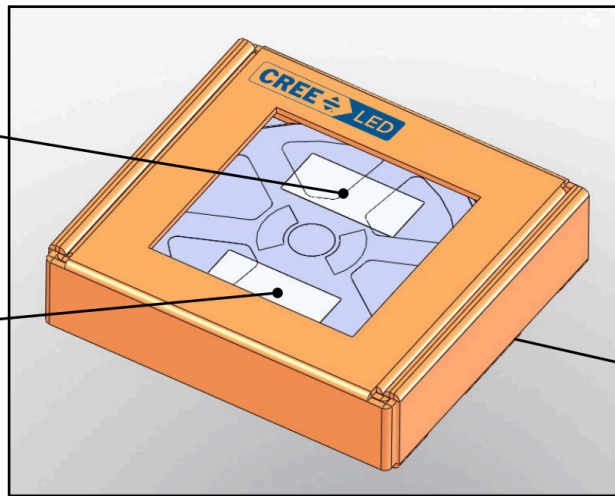
Packaged Reel



Label with Cree LED Order Code, Quantity, Reel ID, PO#

Label with Cree LED Bin Code, Quantity, Reel ID

Boxed Reel



Label with Cree LED Order Code, Quantity, Reel ID, PO#

Label with Cree LED Bin Code, Quantity, Reel ID

Patent Label (on bottom of box)

APPENDIX - ORDER CODES NOT FOR NEW DESIGNS

The following order codes are active and valid order codes, but higher performance options are also available. Please see page 4–page 6 for order codes of XLamp XHP35.2 High Density LEDs that could serve as alternatives for the order codes set forth below.

XHP35.2 High Density EasyWhite®, T_J = 85 °C

| Nominal CCT | CRI | | Minimum Luminous Flux @350 mA | | 2-Step | | 3-Step | | 5-Step | |
|-------------|-----|-----|-------------------------------|-------------------|--------|------------|--------|--------------------------|--------|--------------------------|
| | Min | Typ | Group | Flux (lm) @ 85 °C | Group | Order Code | Group | Order Code | Group | Order Code |
| 5700 K | 70 | | D4 | 550 | | | | | 57E | XHP35B-00-0000-0D0BD457E |
| | 80 | | D2 | 510 | | | | | 57E | XHP35B-00-0000-0D0HD257E |
| | 90 | | B4 | 410 | | | | | 57E | XHP35B-00-0000-0D0UB457E |
| 5000 K | 70 | | D4 | 550 | | | | | 50E | XHP35B-00-0000-0D0BD450E |
| | 80 | | D2 | 510 | | | | | 50E | XHP35B-00-0000-0D0HD250E |
| | 90 | | B4 | 410 | | | | | 50E | XHP35B-00-0000-0D0UB450E |
| 4500 K | 70 | | D4 | 550 | | | | | 45E | XHP35B-00-0000-0D0BD445E |
| | 80 | | D2 | 510 | | | | | 45E | XHP35B-00-0000-0D0HD245E |
| | 90 | | B4 | 410 | | | | | 45E | XHP35B-00-0000-0D0UB445E |
| 4000 K | 70 | | D4 | 550 | | | | | 40E | XHP35B-00-0000-0D0BD440E |
| | | | D2 | 510 | | | | | | XHP35B-00-0000-0D0BD240E |
| | 80 | | D2 | 510 | | | 40G | XHP35B-00-0000-0D0HD240G | 40E | XHP35B-00-0000-0D0HD240E |
| 3500 K | 70 | | D2 | 510 | | | | | 35E | XHP35B-00-0000-0D0BD235E |
| | 80 | | C4 | 475 | | | 35G | XHP35B-00-0000-0D0HC435G | 35E | XHP35B-00-0000-0D0HC435E |
| 3000 K | 80 | | C4 | 475 | | | 30G | XHP35B-00-0000-0D0HC430G | 30E | XHP35B-00-0000-0D0HC430E |
| 2700 K | 80 | | C2 | 440 | | | 27G | XHP35B-00-0000-0D0HC227G | 27E | XHP35B-00-0000-0D0HC227E |

Notes:

- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).

APPENDIX - ORDER CODES NOT FOR NEW DESIGNS - CONTINUED

The following order codes are active and valid order codes, but higher performance options are also available. Please see page 7–page 9 for order codes of XLamp XHP35.2 High Density LEDs that could serve as alternatives for the order codes set forth below.

XHP35.2 High Density ANSI, T_j = 85 °C

| Nominal CCT | Chromaticity Regions | CRI | | Minimum Luminous Flux @ 350 mA | | Order Code |
|-------------|--|-----|-----|--------------------------------|--------------------------|--------------------------|
| | | Min | Typ | Group | Flux (lm) @ 85 °C | |
| 7000 K | 0A, 0B, 0C, 0D, 0R, 0S, 0T, 0U, 1A, 1B, 1C, 1D, 1R, 1S, 1T, 1U | 90 | | B4 | 410 | XHP35B-00-0000-0D0UB40DT |
| 6500 K | 1A, 1B, 1C, 1D | 90 | | B4 | 410 | XHP35B-00-0000-0D0UB40E1 |
| 6000 K | 1A, 1B, 1C, 1D | 90 | | B4 | 410 | XHP35B-00-0000-0D0UB40DV |
| 5700 K | 2A, 2B, 2C, 2D | 0 | 68 | D4 | 550 | XHP35B-00-0000-0D00D40E2 |
| | | 70 | | D4 | 550 | XHP35B-00-0000-0D0BD40E2 |
| | | 80 | | D2 | 510 | XHP35B-00-0000-0D0HD20E2 |
| | | 90 | | B4 | 410 | XHP35B-00-0000-0D0UB40E2 |
| 5000 | 3A, 3B, 3C, 3D | 0 | 68 | D4 | 550 | XHP35B-00-0000-0D00D40E3 |
| | | 70 | | D4 | 550 | XHP35B-00-0000-0D0BD40E3 |
| | | 80 | | D2 | 510 | XHP35B-00-0000-0D0HD20E3 |
| | | 90 | | B4 | 410 | XHP35B-00-0000-0D0UB40E3 |
| 4500 K | 4A, 4B, 4C, 4D | 0 | 68 | D4 | 550 | XHP35B-00-0000-0D00D40E4 |
| | | 70 | | D4 | 550 | XHP35B-00-0000-0D0BD40E4 |
| | | 80 | | D2 | 510 | XHP35B-00-0000-0D0HD20E4 |
| | | 90 | | B4 | 410 | XHP35B-00-0000-0D0UB40E4 |
| 4000 K | 5A, 5B, 5C, 5D | 0 | 68 | D4 | 550 | XHP35B-00-0000-0D00D40E5 |
| | | D2 | | 510 | XHP35B-00-0000-0D00D20E5 | |
| | | 70 | D4 | 550 | XHP35B-00-0000-0D0BD40E5 | |
| | | D2 | 510 | XHP35B-00-0000-0D0BD20E5 | | |
| 3500 K | 6A, 6B, 6C, 6D | 70 | | D2 | 510 | XHP35B-00-0000-0D0BD20E6 |
| | | 80 | | C4 | 475 | XHP35B-00-0000-0D0HC40E6 |
| 3000 K | 7A, 7B, 7C, 7D | 80 | | C4 | 475 | XHP35B-00-0000-0D0HC40E7 |
| 2700 K | 8A, 8B, 8C, 8D | 80 | | C2 | 440 | XHP35B-00-0000-0D0HC20E8 |

Notes:

- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).

APPENDIX - ORDER CODES NOT FOR NEW DESIGNS - CONTINUED

The following order codes are active and valid order codes, but higher performance options are also available. Please see page 11–page 15 for order codes of XLamp XHP35.2 High Intensity LEDs that could serve as alternatives for the order codes set forth below.

XHP35.2 High Intensity EasyWhite®, T_J = 85 °C

| Nominal CCT | CRI | | Minimum Luminous Flux @350 mA | | 2-Step | | 3-Step | | 5-Step | |
|-------------|-----|-----|-------------------------------|-------------------|--------|--------------------------|--------|--------------------------|--------|--------------------------|
| | Min | Typ | Group | Flux (lm) @ 85 °C | Group | Order Code | Group | Order Code | Group | Order Code |
| 5700 K | 80 | | B4 | 410 | | | | | 57E | XHP35B-H0-0000-0D0HB457E |
| | 90 | | B2 | 380 | | | | | 57E | XHP35B-H0-0000-0D0UB257E |
| | | | A4 | 355 | | | | | | XHP35B-H0-0000-0D0UA457E |
| 5000 K | 80 | | B4 | 410 | | | 50G | XHP35B-H0-0000-0D0HB450G | 50E | XHP35B-H0-0000-0D0HB450E |
| | 90 | | A4 | 355 | 50H | XHP35B-H0-0000-0D0UA450H | 50G | XHP35B-H0-0000-0D0UA450G | 50E | XHP35B-H0-0000-0D0UA450E |
| 4500 K | 80 | | B4 | 410 | | | 45G | XHP35B-H0-0000-0D0HB445G | 45E | XHP35B-H0-0000-0D0HB445E |
| | 90 | | A4 | 355 | 45H | XHP35B-H0-0000-0D0UA445H | 45G | XHP35B-H0-0000-0D0HB445G | 45E | XHP35B-H0-0000-0D0UA445E |
| 4000 K | 80 | | B4 | 410 | | | 40G | XHP35B-H0-0000-0D0HB440G | 40E | XHP35B-H0-0000-0D0HB440E |
| 3500 K | 90 | | A2 | 330 | 35H | XHP35B-H0-0000-0D0UA235H | 35G | XHP35B-H0-0000-0D0UA235G | 35E | XHP35B-H0-0000-0D0UA235E |
| 3000 K | 80 | | B2 | 380 | | | 30G | XHP35B-H0-0000-0D0HB230G | 30E | XHP35B-H0-0000-0D0HB230E |
| | 90 | | A2 | 330 | 30H | XHP35B-H0-0000-0D0UA230H | 30G | XHP35B-H0-0000-0D0UA230G | 30E | XHP35B-H0-0000-0D0UA230E |

Notes:

- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).

APPENDIX - ORDER CODES NOT FOR NEW DESIGNS - CONTINUED

The following order codes are active and valid order codes, but higher performance options are also available. Please see page 16 –page 19 for order codes of XLamp XHP35.2 High Intensity LEDs that could serve as alternatives for the order codes set forth below.

XHP35.2 High Intensity ANSI, T_j = 85 °C

| Nominal CCT | Chromaticity Regions | CRI | | Minimum Luminous Flux @ 350 mA | | Order Code |
|-------------|----------------------|-----|-----|--------------------------------|-------------------|--------------------------|
| | | Min | Typ | Group | Flux (lm) @ 85 °C | |
| 6500 K | 1A, 1B, 1C, 1D | 80 | | B4 | 410 | XHP35B-H0-0000-0D0HB40E1 |
| | | 90 | | B2 | 380 | XHP35B-H0-0000-0D0UB20E1 |
| | | | | A4 | 355 | XHP35B-H0-0000-0D0UA40E1 |
| 5700 K | 2A, 2B, 2C, 2D | 80 | | B4 | 410 | XHP35B-H0-0000-0D0HB40E2 |
| | | 90 | | B2 | 380 | XHP35B-H0-0000-0D0UB20E2 |
| | | | | A4 | 355 | XHP35B-H0-0000-0D0UA40E2 |
| 5000 K | 3A, 3B, 3C, 3D | 80 | | B4 | 410 | XHP35B-H0-0000-0D0HB40E3 |
| | | 90 | | A4 | 355 | XHP35B-H0-0000-0D0UA40E3 |
| 4500 K | 4A, 4B, 4C, 4D | 80 | | B4 | 410 | XHP35B-H0-0000-0D0HB40E4 |
| | | 90 | | A4 | 355 | XHP35B-H0-0000-0D0UA40E4 |
| 4000 K | 5A, 5B, 5C, 5D | 80 | | B4 | 410 | XHP35B-H0-0000-0D0HB40E5 |
| 3500 K | 6A, 6B, 6C, 6D | 90 | | A2 | 330 | XHP35B-H0-0000-0D0UA20E6 |
| 3000 K | 7A, 7B, 7C, 7D | 80 | | B2 | 380 | XHP35B-H0-0000-0D0HB20E7 |
| | | 90 | | A2 | 330 | XHP35B-H0-0000-0D0UA20E7 |

Notes:

- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 37).

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

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